Frontier Fertilizer Superfund Oversight Group

2041114

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Present:

Janet Rosati	EPA	Wendy Cohen	FFSOG	Chris Hawkes	FFSOG
Stan Smucker	EPA	Pam Nieberg	FFSOG		
Bonnie Arthur	EPA	Steve Deverel	FFSOG		
Don Hodge	EPA	Glenn Bruch	EPA		
Steve Ross	DTSC	Paul Seday	CH2MHill		
Brian Shay	CH2MHill	Joseph Calger	FFSOG		

I. Introductions and Overview:

a. We went around the room and introduced ourselves.
b. Janet Rosati announced that she will be leaving as our project manager and Bonnie Arthur will take over. Janet is off to do the ROD on her site in Hawaii.
c. Tonight we will discuss the model, the last phases of removal, current dataand schedule and the risk assessment.
d. Janet announced that EPA signed today a covenant with the city and RAMCO regarding completion of EPA's work at the site and coordination with RAMCO activities. EPA's work has priority over any other work in that location.

II. Recent Activities: Bonnie Arthur

a. EPA recently completed new pump tests the results of which were entered into the new version of the model.
b. The second Supplemental RI was released January of 2003. In it are a summary of data from CPT, hydro punch and soil sampling data. Six new extraction wells were also installed. The FS is started to determine final remedies for the soil and ground water at the site. Prior to its completion, EPA will have a scoping meeting with the FFSOG.
c. There will be a community meeting on June 4 to discuss field work for this summer.
d. As mentioned above, EPA met with RAMCO today to discuss coordination with RAMCO to ensure that EPA's work takes precedence. They discussed today where to put PG&E lines, water lines, etc. CH2MHill has people on site two to three times per week to ensure no damage to wells and equipment.
e. Recent data reveals that CCl4 is high on the eastern portion of the site and neighborhood in particular near Cresta; EPA has installed a monitoring well there. Also fairly high in X5. There are high levels of pesticides in the pit and directly north of it, as usual. There are also high levels on Arroyo at OW 11 and there are contaminants in the A1 here too.

III. Coordination of Extraction System Expansion Plans. Paul Seday.

a. Paul started working on the site in December 2001. He is charge of operation and monitoring the system.
b. CH2MHill will install new extraction wells from June through August 2003. They will also install new monitoring wells on Cresta in the subdivision and east of the existing field. They will connect the wells to the system between August and September 2003 and conduct monitoring of the wells beginning in September 2003. One of the new extraction wells will replace an existing well near the disposal basin. All existing extraction wells have been upgraded as well and flow meters were added to them. The wells now extract 60 to 70 gpm.
c. Recent tests showed the following in April 2003 influent to the system:

1,2 DCP	34ug/L	CCl4	119ug/L
EDB	39ug/L	dichloroethane	1.9ug/L
TCP	15ug/L	1,3 DCP	1.2ug/L
DBCP	1.8 ug/L		

The system is removing about 10 pounds per month of DCP.

d. Water in the field tends to move toward the extraction wells at the site. In the winter, the A1, S1, and S2 are all about the same level. Groundwater high. The pumped water flows into the extraction system through optimizers, through filters, through carbon out to the city waste water. EPA is

hoping to be able to increase the plant capacity.

e. In general, levels of contaminants in the S1 and S2 have been decreasing. CCl4 in the S1 has been going down from 63 ug/L in July 2001 to about 36 ug/L in July 2002 to 27 ug/L in January of 2003. DCP in wells X7 in the S1 and OW11 was non-detect. Even though there are still high levels in the S2 in this well, the extraction system is pulling it back. So it appears that the improvements in the P and T system have improved movement of ground water and contaminants from beneath the subdivision.

DCP in X7 in Dec. 2001 was 3100ug/L; now it is 1700 ug/L. In OW11 it was 610 ug/L in 2002 and is 320 now. CCl4 east of the well field is 320ug/L in OW 4B; 110 ug/L in 3B, and 240 ug/L in 12B.

In the A1, 4th quarter monitoring data show relatively high levels of pesticides in OW11, X7 and at the site of the disposal basin. These levels are also falling however. The CCl4 levels have gone from 19 to 60 to 82 to 20 currently, through the winter. The levels are still above the MCL's but coming down.

Steve Deverel asked what the total mass of contaminant extraction is currently, but Paul did not have that number.

f. As mentioned above, EPA would like to increase the level of water pumped by the system, but the city of Davis won't allow them to pump too much more as they will exceed the discharge limits. Also cannot do surface water discharge. The current system is close to maxed at 70 gpm. EPA could use and would like a couple more extraction wells, but they cannot pump too much more water. If they do need to go higher, then one option is reinjection into the groundwater via injection wells. EPA has done so in the past.

f. As mentioned previously, EPA will install 3 extraction wells in the field then will pipe to these wells and the existing well X6. There will also be a monitoring well cluster at Cresta in the subdivision and 2 peizometer clusters east of the well field to evaluate the effect of the nw extraction wells. High levels of pesticides on Arroyo will be the focus of the FS.

g. The removal action this summer will focus on the S1 and S2. The A1 will be part of the FS. EPA will probably have to have higher capacity to pump the A1, and they will require a discharge permit from the city for more capacity. They would like to increase the flow to 80gpm so may use the old injection wells. The downside of using these injection wells is that they are screened in the S1 and S2 and this is tighter soil so only so much water can be pushed into them.

IV. Model. Brian Schroth.

a. The model is a tool to help design the extraction system; it gives us the ability to examine groundwater flow in a 3-dimensional system; and will allow us to evaluate well effectiveness once the new system is implemented. The model incorporates all the knowledge of the system so we can then ask the effect of new wells on the system. Brian reviewed some of the work done in the past year. Upgrades to the extraction system; addition of flow meters on extraction wells; pump tests to interpret horizontal and vertical parameters. EPA has redefined the target volumes. These target volumes drive the modeling. The target volume is roughly the volume of groundwater where concentrations are above the MCLs. We need to capture all this volume of the plume so this establishes the boundaries around the wells with high levels .

b. Since Dec. 2002, EPA conducted pump tests on CD 29 and X1C to help improve the understanding of A1 and A2 zones. Pumping CD 29 for about 7 hours did not affect water levels at the site. CD29 is screened between 600 and 1400 feet below ground. The X1C test gave a successful estimate of aquifer properties. There have also been some numerical model improvements to plug data gaps and to more accurately simulate vertical flow.

c. To ensure complete capture and to ensure that the boundaries are wide enough that new wells or a change in pumping volume do not affect the boundaries, the modeled area has been increased to 5 by 5 miles square. Also in the model has been included more detailed discharge and a more detailed regional pumping effect. The model is much larger now; it takes in nearly half the city. Brian showed a map depicting a deep groundwater pumping "trough" around Davis due to lots of municipal and ag pumping.

e. The model can now be used to evaluate the current extraction system performance in capturing the target volumes in the S1, S2, and A1. All the groundwater within each target volume should go to the extraction wells for total containment. If it does not, then with the model we can simulate the effect of more extraction wells

and develop a plan for more wells based on the model. Ex. In the S1 the extraction wells now pump a total of 38gpm with individual wells pumping 1.5 to 7.5 gpm. The target volume for the S1 is captured by this; all the S1 groundwater is captured either by S1 wells or if some escapes downward, by S2 wells. In the S2, the current total pumped is 16 gpm with individual wells pumping 0.1 to 7.3 gpm. The total estimated future pumping in the S1 and S2 is 64 gpm. To the east and north some of the water in the S2 escapes downward. So with the model they simulated extraction wells in the area east of the current field. If these wells are added and they pump the targeted rates, then all the S2 contamination will also be captured. (64 is still below the maximum of 70gpm.) If they have to add more wells, two more would do it, but would increase pumped volume to 84 gpm—above the maximum allowed. EPA is currently soliciting the City for increased sewage disposal capacity.

V. Schedule:

a. Remedial Action Schedule.

FS begins	Draft FS	Final FS	Final PP	ROD	RD	RA		
5-03	2-04	7-04	9-04	12-04	3-05	8-05		

b. FS. The FS will consider options to the pump and treat forever, but including the current system or expansion of it. Part of the plan might also include removing the soil and DNAPL to eliminate the source or part of it and hasten clean-up. There may be options for the treatment of the soil and high concentration areas. Must also consider how clean do you plan to get the water? To what standard? MCLs? Something else? It is necessary to include the MCLs in consideration, but it may be possible that some other levels could be the goal. Stabilization and containment may be the goal unless there is somewhere an innovative method to treat. The end game is to prevent receptors from being affected. The main receptor is the city's water. The FS will look at options and can look at more aggressive methods of treatments well.

c. Once a PP or Proposed Plan is determined, there will be a public meeting to select the preferred alternative. Then the ROD or Record of Decision will be issued followed by the remedial design and remedial action. After implementation, O and M will continue. Every 5 years there will be analysis of effectiveness of final remedy. Can modify if necessary.

d. Cost? This is difficult to assess, but money is always an important consideration. The FS is already funded. EPA projected what would be required quarterly for developing a work plan, design, for O and M, etc. The design comes out of one pot of money; the construction comes out of another pot. EPA has money now ready to be allocated. Steve asked what our role will be in this process. EPA responded that throughout this process, we will have smaller scoping meetings with EPA. We can also have public meetings if there is an interest. We will be part of the plan development.

VI. Toxics Questions. Stan Smucker.

a. Past calculations were based on animal models, but miss fetal and infant exposures in this. Now EPA is working on new cancer guidelines and is also looking more at mechanisms. EDB and DBCP are genotoxins. CCl4 is cytotoxic and causes increased multiplication, so it can promote cancer. DCP is probably not mutagenic. Risk is calculated for adult and then for infants 0-2 years of age this number is multiplied by 10; for 3 to 5 years of age, by 3. 15 to adult same as now. Chris asked: The new EPA guidelines for children should be 10 times lower than now. Did our RA show a 10 times lower risk than accepted? The risk is calculated so that 24/7 exposure for 30 years results in the risk being between 1 and 100 per million people. Even if all the risks to the chemicals in the RA are added together and then multiplied by 10, the risk is still below 100/million. The actions we are taking now are not based on the current situation, but on future worst case scenarios. Chris says that the risk for 0-2 year olds should be driving the assessment, but it is not.

b. Steve Deverel asked a question about gas entering buildings. Building usually negative pressure, so actually can pull gas in. There is still uncertainty on how much gas can enter buildings above the plume. A building can cause more movement of gas into the building. Gas moves by diffusion until it gets to the foundation of a building, then the building can draw vapors in. If you are off on the gas measurement, and it is possible that the some of the methods of measurement used for the RA were not accurate, what is the effect of uncertainty in the gas flux estimates on the risk assessment calculations? Steve asked why can't they just measure gas concentrations in the buildings? Stan stated that that was not a high priority. It is expensive, and often is a gives a negative impression for the home owner. There was further discussion of the possibility of gas measurement in buildings and there wasn't a high level of acceptance by homeowners in the room

c. There was also a question of doing an eco RA or screening animals like ground squirrels and birds that inhabit the site. The animals on the site have gone through multiple generations. Why not test some of them. If they have no problems, then those living in the neighborhood probably have no problem. Stan replied that it is not that simple. You have to look at the pathways of exposure. You take the worst soil or gas levels and compare them to bench levels. If the levels are below the bench levels, there are no problems. If above, then you sample. The levels of contaminants in the gases rising into the air in the vicinity of the homes are well below the bench levels. If someone was living on the site, then you would sample the animals there. Steve still feels we need duplicate analysis to show the numbers are good. He does not see any QA or QC in relation to soil gas collections and data analysis. Bonnie committed to providing QA/QC data for the gas sample results.

d. Pam asked whether Stan felt the protective level for cancer was also protective of for endocrine disruption potential. Stan replied that it probably was; the endocrine disruption field is relatively new and is just opening up for study. Stan pointed out that the chemicals of concern in our site are more genotoxins than endocrine disrupters (although, in the literature, DBCP is an endocrine disrupter) and he feels that the risk level protective for genotoxins would be protective of endocrine disrupters.

e. There was additional discussion of a planned ecological risk assessment. This will evaluate pathways to fauna and flora and if a significant risk exists, there could be some animal testing to determine possible effects. The question was asked "What would trigger additional risk assessment" and Bonnie replied that discovery of increasing concentrations would trigger this.

f. Steve Ross asked about repeating the flux tests from the grain storage area up to the neighborhood again for CCl4. Bonnie responded that there is no more money for investigative work. The actual physical measurement is best, but since there are seasonal changes, it must be done several times throughout the year. The highest level ofCCl4 in the S1 is 63 ppb. The highest CPT measurement is 200 ppb. There are declining levels in the neighborhood.

Meeting adjourns at 9:20.

Pam Neiberg
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06/30/2003 12:02 PM

To: Bonnie Arthur/R9/USEPA/US@EPA, pseday@ch2m.com, bschroth@ch2m.com, Janet Rosati/R9/USEPA/US@EPA, Steve Ross <sross@dtsc.ca.gov>, Duncan Austin <AustinD@rb5s.swrcb.ca.gov>
cc:
Subject: Meeting notes from May 22 meeting

Hi everyone:

I just got the last of the comments and suggestions on my draft of the notes from the meeting of 5-22-03. I have incorporated them and am now forwarding to you a final copy. If you have any additions or changes, let me know.

Pam Frontiermeet5-22-03 (3).dc