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NIROP FRIDLEY
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MINUTES FROM PARTNERING TEAM MEETING DATED 13 OCTOBER 2011 NIROP FRIDLEY MN
10/13/2011
NIROP FRIDLEY

NIROP Fridley PT meeting May 2011

Location: Fridley City Hall

Meeting Lead: Mary Tierney (EPA)

Scribe: Stephanie Warino (Tetra Tech)

Thursday, October 13, 2011; 8:30 AM

Attendees (Attachment 1):

Paul Rice	The Management Edge	Paul Walz	Bay West
Mark Schultz	Navy Region Midwest	Stephanie Warino	Tetra Tech
Tim Riordan	NAVFAC Atlantic	Mark Sladic	Tetra Tech
Deepa de Alwis	MPCA	Howard Hickey	NAVFAC Midwest
Dean Krebs	Antea Group	Renee Chlore[1]	CH2MHill
Paul Lucas	Antea Group	Tim Ruda[2]	BAE Systems
Mary Tierney	USEPA	Brian Zinda[2]	Arcadis
Rick Kuhlthau	EPA Consultant	Jim Kosluchar[2]	City of Fridley
Scott Anderson	Tetra Tech	Dale Folen[2]	City of Minneapolis
Nicole Goers	TechLaw	Chris Catlin[2]	City of Minneapolis

(1) Attended Thursday only, arrived 10:00 AM, left 12:30 PM

(2) Attended Thursday only, arrived 1:00 PM, left at 1:50 PM

Action items and parking lot items are located in tables at the end of the minutes.

Agenda items (Attachment 2)

Deepa – Introductions

- Previous meeting minutes – ACTION 10.11.A01 (review & get comments to steph by next Friday, October 21)

- Review agenda – Team has no comments

- Review objectives for the meeting

Mark Schultz - Review Tier I/Tier II meeting objectives (vision and goals)

(Attachment 3 – NIROP Vision and Goals)

Deepa –comment on the "Implement Upgrades Goal", it's meant to focus on the AT-5A through AT-10, thinks they may need replaced. Also, goals 5 and 6 are not on the agenda for this meeting.

Tim asked what are Class 2B surface water standards? They are the 2009 aquatic life standard of 120 ppb (letter was sent from MPCA in 2009)

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Paul Lucas – that is in compliance wells? Deepa says we need to define what compliance wells are.

Mary – comment on Goals 4 & 5, very likely that down the road Goal 4 will mean Goal 5 – it's that way because the extraction system is not designed to pull water from ACP – therefore GW should be treated differently in this area.

Mark Schultz – not sure what budget is going to be, operating under continuing resolution now – this site will compete well for what funding is available

Current Site Status - Paul Walz

(Attachment 4) Summary of O&M tasks and extraction well pumping volumes (Attachment 2 contains summary of tasks). Paul passed around samples of the material that comes out of the pipes in the building – one from AT-5B which was very dark brown (manganese?), and one from a composite of the other wells, which was dark reddish brown.

Effluent manifold from ASUs – pipe may impact the amount of flow that the system can handle – Paul wants to look at this and come up with a cleaning approach or replacement approach for them

ACTION 10.11A02 - Steph will send Hal the spreadsheet of historical pumping rates, by next Friday.

Well Installation Updates – Navy – Presented updated map to scale with new locations of AT-11, AT-12, and AT-13. Presented updated schedule for pump testing.

Quarterly Monitoring Data Evaluation – Stephanie

Attachment 5

- Shallow zone – impacts to groundwater concentrations are all in ACP, along the groundwater high, interpreted as intermediate zone. Impacts appear to be well delineated.

- Intermediate zone – Impacts to groundwater concentrations are all in/around the line of extraction wells, around MS-35I and MS-34I. Groundwater appears to be moving from the intermediate zone near MS-34I and MS-35I and moving vertically upward and westward, into the shallow zone along the groundwater high in this area.

- Deep zone – sampling MS-35D and AT-5B quarterly, both showing fairly stable concentrations, AT-5B is showing

Local area groundwater model – Scott Anderson (Attachment 6).

Scott - Focused on extraction system, surrounding area, and intermediate zone. Still same number layers, same grid size, same number of cells as previous version of model, but reviewed

boundary conditions and calibration results with the goal to match residuals to within 10% of measured boundary (20 foot range).

Paul - What layers are intermediate?

Scott – layers 5, 6, 7. The pumps are installed in 6 and 7, which is a predominantly gravel unit. Reiterates goal of focusing on water balance in the extraction well area.

Tim - explains how agreed pumping rates were developed. Then, new scenarios – what if all new wells 200 gpm; what if 150? Trying to bracket previously agreed to, current, and what we think we can ultimately do.

Team discussion - Model designed to analyze capture instead of contamination transport, but contamination actually moves slower than water – retardation, reaction with media, etc. Contamination may travel slightly different path from what is shown for water. Each of Scott's figures show flow within a single layer. In real world, some particles move between layers. Most of the flow from the building area is being captured. Shows flowpaths and capture under ideal pumping conditions.

Scott - Two figures show 3 new wells pumping 150 gpm, plus existing wells at April 2011 rates.

Mary – AT-3A is zeroed out?

Scott - ye.

Mary - Is AT-10 shown on?

Tim - Yes, for now. May want to revisit that decision. Table the AT-10 discussion till Tech Team discussion. Elevations/gradient indicate good capture when near pumping wells – because they are packed so tightly together.

Deepa – can you show particles from East Plating, or 33-I?

Tim – it already does.

Scott shows plot of AT-11 and AT-13 at 100 gpm each, with AT-12 at 75 gpm. Particle capture is equivalent to what was shown with higher rates.

Tim – there is a minimum flow we want to get to. We don't want to pump extra (clean) water through strippers, add chemicals, etc. Some other scenarios, still with middle well at lower rate also show similar results.

Mark Schultz – however, pulling more water through the pumps would still result in more overall reduction of contamination. Discussion about marginal cost of treating 'cleaner' water, wear and tear to system, chemical cost.

Mary – agrees with 'balance of factors' approach. However, MCLs in a reasonable timeframe.

Tim –OK, but that is not what this model does. Hal's model will provide better information about this.

Rick – in order to predict captures and drawdowns, system must be shown accurately. Nobody thinks that there will be a perfect representation of the system. How good is good enough discussion – Tech Team.

Deepa – Scott's conversation makes sense at a high level, however, the details we need to develop some answers. So we need to go back and figure out when we can get some answers – when can we get answers to Paul's 12 (13?) questions.

Tim – if we're going to use this as a tool to size the pumps, we're down to about 2 months to get there.

Regional groundwater model presentation – Hal Davis (Attachment 7)

Hal – see presentation.

Steph – what is total depth (Quaternary as four layers, then 8 existing layers) total depth – 800 feet. Part of need to break Quaternary into four layers was driven by the clay ridge). Also calibrated to 2001 water level measurements – remains most extensive round.

Rick – does your model show any water in the clay units.

Hal –no. The initial model did show some contours, but just covered/blocked those with the solid shapes. Extended the clay unit to the north, since unreasonable to assume it stopped abruptly.

Hal shows a potential BAE plume and how preliminary modeling would show co-mingling in the park. There is not enough data to effectively illustrate the BAE plume, but some concentrations (12,000 ug/l) are suggestive of free product. Hal thinks the plume moves horizontally, deep, then rises vertically in the park.

Rick – would particle tracking show that.

Hal – I've done it, and that is what the particles show.

Local government plan for groundwater use

Fridley well 13 has been on non-service for the last few years due to contamination, and also there has been a reduce in demand. Intention for FW-13 is to remain in standby mode with an option to use it in the future (i.e., summer use).

30% of Fridley's water comes from TCAAP/New Brighton – if the water stops coming from there, then Fridley will need to use all available resources to meet demand.

Background – New Brighton is hoping to meet MCLs in their plume in 30 years. Fridley gets free water because the groundwater, treated to potability by the Army Corps treatment plant is more than they can use for New Brighton demand. Since the New Brighton plume has decreased in size, pumping groundwater for treatment can decrease and Fridley's water supply from that quarter will decrease or stop. Fridley gets 2 to 2.5 million gallons of water per day from New Brighton.

FW-13 pumps at 1200-1600 gpm, is approximately 330 feet deep with a static water level of 15-20 feet bgs. Drawdown was 90 feet in the 1970's and now is about 40-60 feet.

Tim Ruda mentioned that the formation FW-13 is screened in is high in manganese.

Chris mentions that 100% of water right now is from the Mississippi River – a concern because it's a single supply with no backup. They have initiated a study to determine all possible alternate water sources in case the Mississippi River can't be used.

40-60 million gallons per day is pumped. Preferred location for siting pumping wells for GW supply is ACP or near MWW. Looking at the shallow groundwater (alluvial), Prarie du Chien, and Jordon aquifers as potential sources. If NIROP groundwater is being pumped and treated, then some mutual agreement is possible if appropriate treatment is applied to the groundwater and financial agreement can be reached between all parties.

Dale – In September MPCA met with MWW. In 1991 a study was initiated to determine what would happen if the river was contaminated. Will need to identify a source which could supply 50-60 million gallons per day as a long-term source. In the short-term, a backup supply should be identified. Backup supply needs to be identified because of potential contamination of the river, droughts, organic matter, and taste/odor in the river water.

Wells are also being placed in the overburden to manage groundwater levels near the plant in spring/summer to protect the building. Imminent project that would like to get done ASAP – by spring.

Treatment process includes lime softening, coagulation/flocculation steps, sedimentation, filtration, chlorination, etc.

Hal continues the regional groundwater model presentation. Model of potential commingling scenario of NIROP and BAE plumes.

<u>*Tech Team Meeting*</u>

Operating Scenarios (Attachment 8):

1. Replace AT-3A – pump test to determine rate
2. Replace AT-3A and replace flow (evaluate a shutdown of AT-7, AT-8, AT-9, AT-10, AT-5B, following startup of AT-11, AT-12, and AT-13)

3. Replace AT-3A and replace flow and capture shallow (unlikely – possible future evaluation)
4. Replace AT-3A and capture shallow zone (unlikely – possible future evaluation)
5. Replace AT-3A and capture deep zone (unlikely – possible future evaluation)

Tech team notes a concern: that a possible 150 gpm for 3 new wells = 450 gpm, plus 5 existing pumping wells at a total of 470 gpm, is a total system flow rate of 920 gpm, which is very close to what system capacity was (1000 gpm) when the time the system was new.

Paul Lucas – presents the "Technical Approach for Determining the Ideal Pumping Rate" (Attachment 9)

General agreement of Tech Team that BayWest does not use this as a method to determine when a well needs redeveloped, but the method would have use in determining when a well should be replaced. Antea Group will revise the decision flow to factor this in.

Friday October 14, 8:30 AM

Paul Rice – closeout

Deepa – tech team give report

Finalize list of wells during pump tests: OK – tim to send out final list of wells

Tech approach to determine pumping rates: pump test is needed before we can evaluate – different op scenarios: (see pic of board)

Deepa – need to consider which are removing most/least to pick which should be stopped

Mary – how quickly can you tell once the system starts that the system can't handle the capacity

Paul – will be able to tell right away – problems will show up in effluent pumps....etc

Pumping tests – water will run through treatment system – question whether ASUs can handle the additional concentrations – discussion about taking samples during pump testing to estimate concentrations. Steph – need to consider that during pumping tests wells will be running much higher, and therefore pulling clean water so concentrations may be lower than they will when pumping at optimized rates. Paul Lucas – take during the step down at 100 gpm, which is around the rate everyone is thinking. Everyone agrees – Tim will check on funding.

Howard – will be playing with rates for awhile to optimize capture

Tim – will run existing wells at current rates – start new wells low and ramp up if needed. Down the road – look at turning wells off

Rick – wait to talk about shutting wells down

Deepa – schedule – Probably recommendations will be in January, Deepa thinks it will be better if we meet in January.

Tech approach for determining ideal rates – fits well into flow chart, needs some tweaks (Paul Walz does not evaluate the wells that way, Tim will prepare and reissue decision approach for EW evaluation). Tim ideal rates for existing wells very well may be changed.

Mary can't shut down a well unless we have a good case, just because UG wells are under 100 ppb – need to resolve what the 100 ppb number is.

DQOs – how to evaluate whether we achieved capture – looked at DQOs and this is we will evaluate capture. We will evaluate capture as we do during the AMR.

Model – Scott's model was to evaluate the extraction system initial design, Rick and Paul are not ready to rely on the model because they have some issues with the model robustness. Hal's model is headed in the direction of being more robust then Tt's model, and we will not be using Scott's model to evaluate system in the future, will be using Hal's model in the future to evaluate capture. Complete draft model and calibration by December, interim submittals/presentations/maps.

RPM

- Uncertainty of funding – b y January come up with a plan for source investigation
- Finalize the white paper – Rick
- Meet Class 2B surface water standards and achieve MCLs
- May not be possible to show that we are capturing 100 ppb, because of complexities, and we may not be able to show that until February 2013.
- Goal 2 – made adjustment
- Deepa will send out updated goals to the Team.

RPMs will meet December 7, next meeting – February 7 & 8, February 7 start 8:30 – 5:30, February 8 start 8:30 – 4:00

Meeting end & to NIROP for site visit.

ACTION ITEMS

NUMBER	RESPONSIBLE PERSON	DESCRIPTION OF ACTIVITY	DUE DATE	STATUS / RESOLUTION
10.11A01	Team	Review minutes of last meeting and get comments to Steph.	10/21/2011	Complete 10/24 (MPCA) and 10/21 (EPA)
10.11A02	Steph	Copy of all historic pumping rates to Hal.	10/21/2011	Complete 10/19
10.11.A03	Tim	Send out current schedule on new wells (AT-11, AT-12, and AT-13).	10/21/2011	Complete 10/24
10.11.A04	Deepa	Provide Hal with current BAE data.	10/28/2011	TBC
10.11.A05	Paul Lucas	Send groundwater level information by 10/21/2011 and concentration information by 11/4/2011 to Team.	10/21/2011 and 11/4/2011	First AA complete 10/18
10.11.A06	Tim	Send list of final observation wells for pumping tests to Tech Team.	10/17/2011	Complete 10/18
10.11.A07	Tim	Navy prepare/revise decision approach for extraction well evaluation.	11/17/2011	TBC
10.11.A08	Howard and Mary	Send out white paper.	10/21/2011	TBC
10.11.A09	Deepa	Set up RPM telephone call for November 2, 2011, 9:30 AM.	11/2/2011	TBC
10.11.A10	Howard	Set up RPM meeting for December 7, 2011.	11/4/2011	TBC
10.11.A11	Howard	Send out interim operations report.	5/3/2012	TBC
10.11.A12	Mary	Conference call to discuss 2010 AMR for November 9, 2011 9AM Central time.	11/9/2011	TBC
10.11.A13	Steph	Action items out to Team.	10/21/2011	Complete 10/17

Pluses and Minuses

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1. Moved forward - smoothly.	1. Hal had late lunch.
2. Stephanie's presentation of maps.	2. Lack of trust.
3. Covered lots of ground.	3. Having a large map of the site.
4. Breakout sessions were good.	4. Get presentations out a week ahead of the meeting.
5. Got lots done.	5. Time allocation.
6. Good attitudes on tough issues.	6. Going to miss Mark Sladic.
7. Prepared when came to meeting.	7. Surprise items on the agenda.
8. Information on both models.	8. RPM's getting information to team leader.
9. Having Mark Sladic for the last 15 years!	9. Need to improve communications during non-meeting time.
10. Good tech team discussions.	10. Leave emotions at the door.
11. Water treatment discussion.	
12.More detailed agenda.	
13. Time spent on agenda preparation.	
14. The food!	
15. Full day format.	
16. Hal's characterization of BAE Plume.	
17. Having lunch in.	