

Meeting Minutes

Project: Tronox (TRX)
Location: Conference Call
Time and Date: 9:00 AM, Wednesday, November 14, 2007
Meeting Number: ---
In Attendance:

NDEP: Brian Rakvica, Shannon Harbour
Hackenberry Associates: Paul Hackenberry (consultant to NDEP)
Tronox: Tom Reed, Susan Crowley
Environmental Answers: Keith Bailey (consultant to TRX)
ENSR: Dave Gerry, Brian Ho, Sally Bilodeau, Mike Flack, Ed
Krish (consultants to Tronox)

1. The purpose of this conference call was to discuss NDEP's conditional approval of the Revised Work Plan to Evaluate Effective Groundwater Capture at Tronox Extraction Systems (Revised Work Plan).
2. TRX provided draft cross sections of the Interceptor, Athens Road, and Seep Area well fields for discussion purposes during the conference call.
3. TRX indicated that a Response To Comments (RTC) will be submitted to the NDEP by November 30, 2007. **ACTION ITEM.**
4. TRX and NDEP discussed comments in NDEP's October 3, 2007 response to the Revised Work Plan as outlined below.
5. Comment 1: TRX will use "barrier wall" in all future documents.
6. Comment 3: TRX stated that a pumping test will be conducted for EX-1 as this is the only well that is proposed for groundwater pumping as a supplement to the Interceptor Well Field. TRX will correct well nomenclature for final submittal for consistency with the current well nomenclature.
7. Comment 4: as follows,
 - a. 4a: TRX will respond with additional text for clarification
 - b. 4b: TRX indicated that the cross sections will be submitted with the RTC.
 - c. 4c: TRX will collect core samples for vertical gradient analysis. ASTM number will be provided in RTC.
 - d. 4d: TRX stated that additional wells proposed in work plan should provide data needed to address this comment.
 - e. 4e: TRX stated that additional wells proposed in work plan should provide data needed to address this comment.
 - f. 4f: TRX stated that there is no transition zone between the Muddy Creek Formation and the Alluvium in the vicinity of the Interceptor Well Field.
 - g. 4g: NDEP to provide BRC block diagrams to TRX for an example.
ACTION ITEM.
8. Comment 5: as follows:
 - a. 5a: NDEP stated that TRX should investigate the impact of other flows around the barrier wall. TRX acknowledged this request, indicating the

- proposed wells on the east and west end of barrier were proposed to address this concern.
- b. 5b: NDEP comments are based on the need for TRX to provide data to corroborate the terms and statements TRX provided in the Revised Work Plan. TRX stated that a simple mass balance provided in the revised work plan shows that the injected stabilized Lake Mead water is the “significant” component for the expansion of the 100 ppm contour line.
9. Comment 6b: TRX stated that this comment should be addressed by the proposed wells.
 10. Comment 7: NDEP cautioned TRX that modeling is only one line of evidence. TRX will explore additional lines of evidence for support, especially demonstration of inward flow. TRX indicated that the wells proposed for the Athens Road Well Field were located to address the concern over demonstration of inward flow.
 11. Comment 9: TRX will supply cross sections with RTC. TRX additionally stated that some wells may look like they are not screened appropriately as they were projected onto the plane of the cross section and are screened in the appropriate formations.
 12. Comment 10: as follows,
 - a. 10a: NDEP requests a discussion of the mass balance instead for just concentration contours.
 - b. 10b: TRX will not halt injection of the Lake Mead water during the “mining” of wells M70, M71, and M72 for the removal of the “dead zone” water. The combined pumping rate for these wells is expected to be 1 – 2 gpm. These wells are 2 inch diameter wells. TRX stated that the injection rate for the Lake Mead water has decreased from 60 gpm to 25 gpm; therefore, the groundwater mounding due to the injection has diminished and may affect the expected pumping rate for M70, M71, and M72. Wells will be monitored on a regular schedule for contaminant concentrations during pumping. Monitoring may be conducted on-site and for perchlorate only.
 13. Comment 12b: TRX does not believe that the different flow paths can be separated and that not enough work to the north had been completed to determine channelization. TRX stated that their intent was to bracket expected seepage velocities. Language will be included in the RTC to show the ranges of values for seepage velocities determined from previous work.
 14. TRX stated that the reduction in the injection efficiency of the trenches for the injection of Lake Mead water will be addressed by either excavation/refurbishing existing trenches or excavation of a new trench. TRX will notify NDEP of decision in RTC. NDEP recommended contacting BWPC for these activities.
 15. TRX requested clarification on whether NDEP will accept demonstration of 95% or greater mass capture at each of the well fields as acceptable for compliance. The NDEP stated that 95% mass capture is still the benchmark for compliance; however, TRX and NDEP should meet to discuss the determination of the boundaries of the target capture zone for each well field. This will directly effect the calculation of mass removal at the well fields.
 16. NDEP will send the reference for GPRA. **ACTION ITEM.**

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17. Well Rehabilitation Program, TRX states that a layer of caliche seems to be interfering with well efficiency. TRX plans to swab individual wells but will not utilize a camera to investigate any wells. TRX stated that if the well fields are achieving over 95% mass capture, then well efficiency shouldn't be an issue.
18. TRX stated that the horizontal hydraulic conductivity for the MCF was used to that the groundwater calculated equaled the groundwater extracted at the well field. TRX stated that if the vertical hydraulic conductivity is used then the calculated value would be less than the actual value. TRX stated that upgradient water line leaks could account for additional water though TRX states these leaks have been infrequent.
19. TRX will begin implementation of the Revised Work Plan on November 26, 2007.