

**Environmental
Protection Agency**

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

May 4, 2011

**PIKE COUNTY
PARKER HANNIFIN
RCRA
OHD046426409**

Mr. Rick Taylor
Parker Hannifin Corporation
6035 Parkland Boulevard
Cleveland, OH 44124-4141

Dear Mr. Taylor:

Ohio EPA has completed a review of the 2010 Semi-annual and Annual Reports (Ground Water Monitoring Data for all four quarters in 2010) for the Parker Hannifin Corporation (PHC) Waverly Facility in Pike County, Ohio. The reports were prepared by Advanced GeoServices Corp. (AGC) of West Chester, PA and both were received by the Ohio EPA on March 1, 2011.

PHC is required to submit semi-annual reports to Ohio EPA as per Ohio Administrative Code (OAC) Rule 3745-54-100(G). As per the revised Corrective Action Monitoring Plan (CAMP) for the PHC site (August 2006), the ground water sampling parameter list consists of fifteen VOCs and one metal site specific parameters at each of PHC's thirty-nine monitoring wells and two surface water locations in Pee Pee Creek. PHC also monitors static water level at sixteen piezometers surrounding four recovery wells. PHC is currently responsible for fulfilling the terms of a Director's Final Findings and Orders (DFFO's), dated December 27, 2000. With respect to ground water monitoring, the site is controlled by its CAMP and the Hazardous Waste Corrective Action rules found in OAC 3745-54-90 through 3745-54-100.

The 2010 Semi-annual and Annual Reports discuss a number of new and old issues for the period January through December, 2010. Among the noteworthy are:

- ❖ Following ground water modeling work conducted by PHC's contractor in 2008 and 2009, an average pumping rate threshold of 140 gpm was instituted to judge the effective and efficient management of its plume management area along the banks of Pee Pee Creek. The AECOM/Parker ground water model predicts that at a pumping rate of 140 gpm or more from Parker's line of recovery wells, the hydraulic gradient between the recovery well network and Pee Pee Creek is minimized to the extent that declining VOC concentrations in ground water discharging to Pee Pee Creek is predicted. For a number of reasons, discussed below, Parker did not meet this minimum pumping capacity in its plume management area. Pumping rates in the plume management area during the first half of the year averaged around 108 gpm; in the second half of the year an average pumping rate of 123 gpm was attained. As of December 31, 2010, the system was operating at 118 gpm, and would continue to do so until system maintenance could be performed.

- ❖ During the first half of 2010, the ground water extraction and treatment system was shut down for three days to remove the scale build-up from the air stripper trays and 20 days due to an extended power outage. While the system was down (in April), the recovery wells were cleaned by Moody's of Dayton. Following the cleaning of the wells, Moody also cleaned and refurbished the pumps in RW-4, RW-5 and RW-6. During this period, the system operated at a reduced rate as the pumps were removed and serviced one at a time. Simultaneous operation of all three recovery wells did not resume on the site until July 14, 2010.
- ❖ During the second half of 2010, the ground water extraction and treatment system was shut down for 10 days to perform system maintenance, six days to remove the scale build-up from the air stripper trays and five days due to a constriction in, and the subsequent repair of (October), the system effluent line. During the system effluent line repair, additional effluent line scale build-up was noted on a longer length of the effluent line. RW-4 was turned off to reduce the total flow of treated water through the treatment system so as to avoid the back up of effluent line water into discharge manholes and the land surface. Repairs to the remaining effluent pipe affected by scaling are scheduled for the first week of April, 2011. In the meantime, a section of the VOC ground water plume is expected to bypass RW-4 on its way to the banks of Pee Pee Creek monitored by MW-16S.
- ❖ Parker and Ohio EPA use surface water samples from Pee Pee Creek to confirm local ground water trends and to judge the overall effectiveness of the plume management system. Because surface water sampling in Pee Pee Creek is less precise and less accurate than ground water sampling, PHC and Ohio EPA do not use the surface water results alone to make judgments on the effectiveness of the plume management remedial system. However, the September and November 2010 site-wide sampling events resulted in historically high surface water VOC results from Pee Pee Creek. The down gradient surface water location (which, in general, monitors ground water contributions from the plume area to Pee Pee Creek) detected TCE around 20 ppb in September, and 7.5 ppb in November. These results are troubling since results of this magnitude occurred only two other times in the past 10 years.
- ❖ Geochemical ground water conditions on site have continued to improve, overall, from past reports. The 2010 report analyzed ground water contaminant trends over time in all key monitoring wells exhibiting contamination. Significant decreasing trend lines were observed for all wells illustrated in the report (MW-1, MW-2, MW-3, MW-4, MW-8S+8I, MW-12R, MW-16S, MW-17 and MW-20S). It should be noted that some of the wells had minor increases over earlier data in 2009/10, but the increases do not appear to alter the overall decreasing trend lines. For monitoring well MW-16S (which alerted Ohio EPA to the poorly performing former pump & treat system at PHC nearly 15 years ago), ground water concentrations of TCE have exceeded the GPS of 5 ug/l only twice in the past 3 years (9.7 ppb in Feb 2008 and 8.7 ppb in June 2010).

- ❖ The air sparge/soil vapor extraction (AS/SVE) system experienced a 20-day shutdown in the first half of the year due to an extended power outage on the site. During the second half of the year, the system operated every day but two days, due to a shutdown related to maintenance of the ground water treatment system. PHC operated the AS/SVE system at or above the targeted 15 SCFM/well for the AS wells and 110 SCFM/well for the SVE wells. Nearby ground water monitoring wells appear to be positively impacted by the operation of the system, but as AGC notes in its report, "the overall decrease in MW-8S and the compliance wells is less than expected based on the duration of the system's operation." Based on a study of the efficacy of its source area remediation system, additional AS wells were proposed by AGC last year, as illustrated by Figure 4-1, attached to this memo for reference. Due to project management delays, work is scheduled to begin in the second quarter of 2011.
- ❖ Due to tractor damage earlier in the year, MW-19S was abandoned and replaced by MW-19SR in July, 2010. Unfortunately, monitoring well MW-11S was also damaged (November 2010) and no samples were collected from 11S during the 4th quarter sampling. MW-11S is scheduled to be repaired in the spring of 2011.
- ❖ In this year's annual report, AGC again requests (for PHC) that chromium be eliminated from all ground water and surface water sampling requirements based on six years of data below the GPS. AGC states that Ohio EPA's June 8, 2009 letter does not provide any justification for continuing chromium sampling. AGC states that "PHC believes that six years of data below the GPS exceeds the requirements of the approved Revised CAMP and meets the intent of the CAMP."
- ❖ PHC contracts its environmental consultant (AGC) to perform a Tier 1 Data Validation Review of its analytical data following each quarter's sampling event. All four quarters were reviewed by AGC's Erica Nicholson, who reported no critical problems with the data analysis package supplied by TestAmerica Labs of North Canton, OH. The most frequent changes/edits to the data package occurred due to sample dilutions; re-runs were required to meet the goal of reporting at or below the MCL; these re-runs were qualified with the initial "D". PHC achieved 100% data usability (as qualified) for its four quarters of samples collected in 2010.

Ohio EPA has anticipated significant decreases in ground water VOC content down gradient of the new recovery well extraction system since 2007. The key down gradient wells capable of measuring the system's effectiveness are MW-16S and MW-20S. The results have been promising for MW-16S, which has shown a sustained drop since 2007. MW-20S has also posted declines over time, but its average VOC concentration level over the past three years has still remained above 200 ppb. Additional declines will be required before Ohio EPA will consider removing the violation cited below.

However, the following violations of Ohio's hazardous waste laws and the DFF&Os remain:

- (1) OAC Rule 3745-54-100(E)(1),(E)(2) and section V. 2. of the December 27, 2000 Director's Final Findings and Orders (DFFOs):** (E)(1) The owner or operator must conduct a corrective action program to remove, or treat in place, any hazardous constituents in groundwater that exceed specified concentration limits between the compliance point under rule 3745-54-95 of the Administrative Code and the down gradient property boundary; (E)(2) The owner or operator must conduct a corrective action program to remove or treat in place any hazardous constituents under rule 3745-54-93 of the Administrative Code that exceed concentration limits in ground water beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the director that, despite the owner's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

(E)(1) PHC has failed to control and capture the release of VOC-laden ground water between its compliance point and the facility boundary with Pee Pee Creek; (E)(2) PHC has failed to control and capture the release of VOC-laden ground water beyond the facility boundary.

Ohio EPA continues to cite this because PHC's plume management system has not yet operated at optimal levels for the long term. While Parker's monitoring well network has demonstrated declining trends in 2010, recent information from surface water samples in Pee Pee Creek (from the third and fourth quarters of 2010) suggests the recovery well system is not fully capturing the local VOC plume. Note that these violations will remain outstanding until the corrective measures have brought on-site ground water contamination under full hydraulic control.

- (2) Section V. 8. of the December 27, 2000 Director's Final Findings and Orders (DFFOs):** In the event that PHC identifies conditions at or emanating from the Facility that diminish the PHC's ability to monitor, capture, treat or otherwise remediate the site such that PHC no longer meets the remedial standards set forth in the amended post-closure plan, and such conditions continue for a period exceeding five (5) days, PHC shall notify Ohio EPA by email, facsimile or detailed letter report within seven (7) days from the discovery of the occurrence by PHC. As used herein, conditions at or emanating from the facility that diminish PHC's ability to monitor, capture, treat or otherwise remediate the site include, but are not limited to the following:

- (i) Any equipment or process failure or shut down which would result in the loss of plume control and/or groundwater treatment, or
- (ii) Any violation or noncompliance with the hazardous waste rules, these Orders or the PCP (post closure plan), or any amendment thereof, which would impair the efficacy of the corrective action program of PCP.
- (iii) Respondent shall include the following information when reporting the above incident/condition to Ohio EPA:

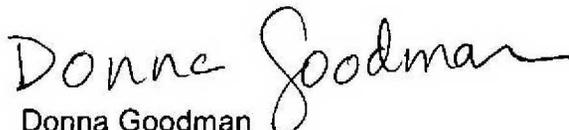
Mr. Rick Taylor
Parker Hannifin Corporation
May 4, 2011
Page 5

- a. The time the incident/condition was discovered and/or occurred;
- b. The circumstances which precipitated the incident/condition;
- c. The remedial steps being taken to remedy the incident/condition, including a timetable for remedy;
- d. The steps or measures being taken to reduce, eliminate and/or prevent the reoccurrence of the incident/condition; and
- e. Respondent shall notify Ohio EPA, in the manner set forth in paragraph 8.a., when the incident/condition has been remedied."

PHC failed to notify Ohio EPA, as required above, in October 2010, when the effluent line plugged up, necessitating the shutdown of recovery well RW 4, resulting in the pumping rate of the system dropping below the minimum (140 gpm) rate recommended for the plume management system. No specific actions are required to abate this violation at this time.

Please submit any requested information no later than 30 days from the date of this letter. Should you have any questions, please feel free to call me at 740-380-5293 or Mr. Steve Saines at 740-380-5445.

Sincerely,



Donna Goodman
District Representative
Division of Materials and Waste Management

DG/mlm

cc: Martha Connell, Parker Hannifin Corporation
Steve Saines, DDAGW/SEDO