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Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

February 28, 2007

RE: RES SITE "B" LANDFILL GROUND WATER MONITORING NOTICE OF VIOLATION

CERTIFIED MAIL

Yogi Chokshi
Reserve Environmental Services
4633 Middle Road
P.O. Box 1038
Ashtabula, Ohio 44004

Dear Mr. Chokshi:

The Ohio Environmental Protection Agency (Ohio EPA) has conducted a review of the Ground Water Monitoring Program/Sampling and Analysis Plan for the Industrial Solid Waste Landfill at Reserve Environmental Services, Inc. prepared by Reserve Environmental Services, Inc., dated April 26, 2006. The document was received by Ohio EPA on May 08, 2006. Reserve Environmental Services' (RES) must conduct ground water monitoring in accordance with Ohio Administrative Code (OAC) Rules 3745-29-10 and 3745-30-08, as effective August 15, 2003.

Upon review of the documents, Ohio EPA identified the following violations:

1. **OAC Rules 3745-29-10(A) and 3745-30-08(A)(2)(a):**

   These rules required that RES, no later than 270 days after August 15, 2003, submit a revised ground water monitoring plan pursuant to OAC Rule 3745-30-08. Two-hundred-and-seventy days from August 15, 2003, was May 11, 2004. RES failed to submit a revised ground water monitoring plan in accordance with these rules until May 8, 2006. Therefore, RES was in violation of these rules for one year and 362 days.

2. **OAC Rules 3745-30-08(A)(1), 3745-30-08(B)(1)(b), and 3745-30-08(B)(4)(b):**

   RES has failed to maintain a sufficient number of downgradient monitoring wells capable of representing the quality of ground water passing directly downgradient of the limits of waste placement, and detecting a release from the landfill facility to the ground water at the closest practicable location to the limits of solid waste placement. According to Table 1 of the revised Ground Water Monitoring Program/Sampling and Analysis Plan (GWMPSAP), the ground water monitoring

system includes ground water monitoring wells MW-931S and MW-932S. However, RES has not sampled these wells since late 1998 or early 1999, when they were apparently damaged during the construction phase of Stage 3. As such, the downgradient perimeter monitored by these wells has gone unmonitored, and RES has been in violation of these rules for seven to eight years.

At a minimum, RES must immediately install replacement wells for these locations (MW-931S and MW-932S), properly develop the new wells, and resume semiannual ground water sampling of the replacement wells pursuant to these rules. Once this has been accomplished, RES must for the proper abandonment of the damaged wells, if they have not already been properly abandoned. A revised GWMPSAP should be submitted for Ohio EPA review that contains any necessary changes resulting from the installation of the replacement wells.

3. **OAC Rule 3745-30-08(B)(3)(d)**:

RES failed to adequately document the design and installation of all monitoring wells or piezometers in the revised GWMPSAP. While Table 1 provides a quick summary of a few of the basic features of each well in the monitoring network (mostly elevation measurements), it does not provide all of the necessary design and installation information. It is standard practice that the boring logs and well construction logs for each monitoring well and piezometer in the monitoring network are included in the ground water monitoring plan, as these logs contain important details regarding the geology/hydrogeology, drilling methods, and well construction for each individual well or piezometer. After review of the revised GWMPSAP, Ohio EPA determined that none of the boring logs and well construction logs were contained in the revised GWMPSAP.

At a minimum, RES must revise the GWMPSAP to include the boring logs and well construction logs for all of the wells and piezometers in the monitoring network. The revised GWMPSAP should be submitted to Ohio EPA for review.

4. **OAC Rule 3745-30-08(C)(2)**:

Chapter III, Section B of the GWMPSAP fails to specify that the ground water elevations in all Site B monitoring wells will be measured within a single 24-hour period, will be measured again immediately prior to purging and sampling each well, and the measured elevations associated with each well will be documented on the subsequent potentiometric maps. Instead, the section appears to be written to address the entire RES facility rather than focusing on the Site B

landfill, is not written in accordance with the requirements of this rule, and does not take into account the physical limitations of an annual well depth measurement considering that dedicated bladder pumps are installed in each Site B landfill monitoring well. In particular, as it is currently written, this section requires static water level measurements be performed quarterly at all wells on site; requires an annual measurement of well depth for all regularly sampled monitoring wells; requires another semiannual measurement of the static water levels at all wells on-site within a three (3) day period; and lastly, requires the construction of potentiometric maps.

RES needs to revise this chapter and section of the GWMPSAP to specify the following static water level elevation measurement procedures for the Site B landfill:

> Static ground water elevations will be measured within a single 24-hour period in all monitoring wells at least semiannually;
>
> Immediately prior to purging and sampling each monitoring well, the static ground water elevation will be measured again;
>
> Semiannually, RES will determine the direction of ground water flow in both the uppermost aquifer system and any significant zones of saturation monitored. This determination will be submitted with the semiannual sampling data in the form of potentiometric maps that depict the ground water elevations at each well or piezometer and arrows showing the direction of ground water flow; and
>
> In the event a dedicated bladder pump is removed from a well for service, replacement, or well conditioning activities, RES will measure the total well depth.

RES should submit the revised GWMPSAP to Ohio EPA for review.

5. **OAC Rules 3745-30-08(D)(1) and 3745-30-08(D)(2)**:

Chapter II, Section B of the GWMPSAP fails to present the full list of Appendix III H parameters that will be monitored semiannually and annually. Without formal approval from the Director of Ohio EPA, RES has greatly reduced the number of parameters that will be monitored during semiannual and annual ground water monitoring activities. Specifically, RES has eliminated all of the volatile organic compounds (VOCs) from the annual sampling requirement, and has reduced the semiannual indicator parameter list to only three constituents: ammonia, chloride,

and chemical oxygen demand. These changes require a formal request be approved by the Director prior to their use. No such request has been approved, as such these changes to the GWMPSAP are a violation of these rules. In addition, Chapter III, Section D-2, Table 2 in Section E-1, Section E-2, and Table 5 in Section G, all contain information pertaining to VOCs and VOC sampling protocol that has been struck or removed from the GWMPSAP.

RES needs to reinstate all references and language regarding volatile organic compound sampling that has been struck from Chapters II and III of the revised GWMPSAP. This includes Section B of Chapter II, as well as, Sections D-2, E-1, E-2, and G of Chapter III. RES should submit the revised GWMPSAP to Ohio EPA for review.

6. **OAC Rules 3745-30-08(C)(1), 3745-30-08(C)(1)(b)(i), and 3745-30-08(C)(1)(b)(ii)**:

   a. Chapter III, Section D-1 of the GWMPSAP fails to contain a complete discussion of the low flow purging and sampling procedures that are to be followed when sampling the Site B landfill monitoring wells. According to the first paragraph of this section, the owner/operator will use low flow sampling techniques to eliminate the need to purge three well volumes in addition to leaving the stagnant well bore water undisturbed. The reader is then referred to Appendix A where pertinent portions of the trademark Well Wizard dedicated sampling system User Guide can be found. However, the referenced user guide, as well as the following paragraphs of this section, do not contain a complete and comprehensive discussion of how to properly execute the low flow purging and sampling technique to ensure that representative ground water samples are consistently collected. In particular, it is not stressed that well purging take place as low flow, rather it seems that more of a volumetric purging requirement (i.e. three well volumes) is proposed, and low flow doesn't enter into the process until it is time to collect the sample. As presented, this procedure will more than likely violate the plans previously stated objective of leaving stagnant well bore water undisturbed, and can lead to the collection of ground water samples that are unrepresentative of true ground water quality. In addition, Appendix A only contains two pages of the Well Wizard User Guide that discusses sampling protocol, and doesn't seem to contain nearly the detail necessary to ensure that users of the Well Wizard dedicated sampling system will properly collect representative ground water samples using the low flow purge and sample technique. For instance, it is common practice during low flow purging and sampling to monitor (every three-five minutes) the static water level in each well to

ensure that minimal to no drawdown of the stagnant well bore water is taking place, and to adjust or lower the flow rate so that minimal to no drawdown is taking place during both purging and sampling activities. There is no mention of continuous or periodic static water level measurements accompanied by flow rate adjustments anywhere in the GWMPSAP.

At a minimum, RES needs to revise Chapter III, Section D-1 to contain a more comprehensive discussion of the low flow purging and sampling procedures that are to be followed when sampling the Site B landfill monitoring wells. Appendix A should also be revised to include Chapter 4 in its entirety from the Well Wizard User's Guide on sample collection, especially if it contains more detailed protocol on low flow sampling requirements. Ohio EPA recommends RES consult the following online reference to Chapter 10 of the Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring (2006) for additional information and assistance on revising the low flow purging and sampling procedures that will be incorporated into the revised GWMPSAP:

http://www.epa.state.oh.us/ddagw/Documents/tgmguid10sap2006final.pdf

RES should submit the revised GWMPSAP to Ohio EPA for review.

b. Chapter III, Section D-1 and Section E-2 of the GWMPSAP fail to contain an acceptable sampling procedure for collecting samples for dissolved metals analysis. Section D-1 states:

> "When sampling for dissolved metals, a disposable 0.45 micron filter is inserted into the end of the discharge tubing."

While Section E-2 states:

> "The water is discharged through the filter directly into a pre-preserved sample bottle."

It is important when collecting ground water samples that are to be filtered, that any filter manufacturing or packaging contaminants that could impact sample results be cleared or purged from the disposable filter. This is accomplished by waiting to collect the dissolved metals sample until after the first filter volume of discharge water passes through the filter. This allows the filter to be purged of any possible contaminants and also allows the entire filter to become saturated, which ensures the designed filtering capacity of the filter is achieved.

At a minimum, RES needs to revise Chapter III, Section D-1 and Section E-2 of the GWMPSAP to contain a more comprehensive discussion of how dissolved metals samples will be collected. The discussion should highlight that sample collection will not occur until the first filter volume of discharge water is allowed to pass through the filter to purge the filter of any possible contaminants, while also allowing the filter to become completely saturated to maximize the designed filtering capacity of the filter.

7. **OAC Rules 3745-30-08(C)(5)(a), 3745-30-08(C)(6)(a), 3745-30-08(C)(6)(d), and 3745-30-08(C)(6)(e)**:

Chapter II, Section E of the GWMPSAP fails to adequately describe the statistical methods and procedures that will be followed to analyze the sampling results collected from the Site B monitoring wells. While the selected statistical method, the tolerance interval, is acceptable, other than providing the formula for calculating tolerance intervals and stating that a comparison will be made to determine if a statistical increase has occurred, RES failed to provide any of the supporting background information and analyses required by these rules.

At a minimum, RES needs to revise Chapter II, Section E of the GWMPSAP, and add additional Appendices if needed, to include summary tables of all the ground water sample results from the background wells that will be used to construct the tolerance intervals; include calculations and results describing the distribution of the background ground water data (is the data normally distributed, log normally distributed, or distribution free?); include the calculations of the tolerance intervals for the appropriate Appendix III H constituents, making sure that the tolerance interval is properly calculated based on the distribution of the ground water results for each parameter separately; and lastly, show or describe how background ground water results below the limit of detection (the practical quantitation limit, or PQL) shall be addressed or handled (i.e. use one half the PQL, when data are below the PQL).

In addition, Ohio EPA has the following recommendations.

8. Chapter II, Section C contains a couple typos or apparent transcription errors that result in the incorrect rule language being stated in the GWMPSAP. In the third paragraph of this section, RES appears to have left out the word "annually." The correct wording of the paragraph follows:

> "...constituents determined to be released on a semiannual basis and ***annually*** analyze all the applicable parameters in Appendix III until relieved by the Director."

In the fourth paragraph of this section, RES appears to have cited the incorrect rule, "3745-30-08(E)(2)." The correct rule citation and wording of the paragraph follows:

> "...and will comply with ***3745-30-08(E)(6)*** and (F) (assessment and corrective measures) until reinstatement is approved."

In order to ensure that no misunderstandings or avoidable mistakes are made during the implementation of RES's ground water monitoring program, Ohio EPA recommends RES revise the GWMPSAP to incorporate these changes to Chapter II, Section C. Ohio EPA requests RES submit a revised GWMPSAP for review if the owner/operator makes these revisions.

9. Chapter II, Section D contains an outline and brief discussion of corrective measures. Since the primary function of the GWMPSAP is to detail how RES will conduct sampling and analysis activities while operating mostly in detection monitoring, this section is not really necessary. If corrective measures were at some point in the future to become a necessity for the owner/operator at RES Site B, a whole new corrective measures study/plan would have to be submitted. It is therefore not necessary to have an outline and brief discussion of corrective measures in the GWMPSAP. In addition, Ohio EPA noted what appears to be some inconsistencies between this section and the rules, which could lead to future misunderstandings and accidental mistakes.

   Taking all this into consideration, and in order to ensure that no misunderstandings or avoidable mistakes are made during implementation of RES's ground water monitoring program, Ohio EPA recommends RES revise the GWMPSAP to remove the entire section on corrective measures. Ohio EPA requests RES submit a revised GWMPSAP for review if the owner/operator makes these revisions.

10. Chapter III, Section A contains the decontamination procedures that will be used at the site. Ohio EPA is concerned that the specified decontamination procedures are more suitable for use at a site where extreme levels of ground water contamination are present that contact ground water sampling and measuring equipment. Specifically, the decontamination procedure includes rinses with nitric acid, acetone, and hexane. These kinds of rinses have their place at highly contaminated sites, but RES Site B landfill is still in detection monitoring. Using these products as part of regular decontamination procedures at an uncontaminated site is complex, and any missteps could result in ground water contamination being accidentally introduced during routine sampling operations (i.e. the ground water becomes contaminated by acetone, hexane, etc...). Presently, it appears that none of the Site B monitoring wells show any

evidence of being contaminated by toxic metals, volatile or semi-volatile organic compounds or pesticides/herbicides. Thus, the need for rinses with nitric acid, acetone, and hexane is minimal at best.

With this in mind, Ohio EPA recommends the owner/operator revise the decontamination procedures to eliminate the rinses with nitric acid, acetone, and hexane. Ohio EPA requests the owner/operator submit a revised GWMPSAP for review if the owner/operator makes these revisions.

Please respond to this letter in writing within fourteen (14) days to indicate how you have abated or will abate the above violations. The content of this letter does not relieve the owner/operator from its obligation to comply with other applicable requirements set forth in ORC Chapter 3734 and the rules promulgated there under, or its obligation to comply with other applicable State and Federal laws and regulations.

If you have any technical questions regarding this review, please contact Mark Kroenke at (330) 963-1225. Please submit all correspondence to Colum McKenna, Division of Solid and Infectious Waste Management, Northeast District Office, Ohio EPA, 2110 East Aurora Road, Twinsburg, Ohio 44087.

Sincerely,

Colum McKenna
Environmental Specialist
Division of Solid and Infectious Waste Management

CJM:cl

cc: Mark Kroenke, NEDO-DDAGW
Ray Saporito, Ashtabula County Board of Health
File: [TUKEL/LAND/RES Site "B" Landfill/GRO/04]

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