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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 29, 2001

Dr. Inés Triay, Manager
Carlsbad Field Office
Department of Energy
P. O. Box 3090
Carlsbad, New Mexico 88221-3090

Mr. John Lee, General Manager
Westinghouse TRU Solutions LLC
P.O. Box 2078
Carlsbad, New Mexico 88221-5608

**RE: NMED COMMENTS ON WIPP GROUNDWATER MONITORING REPORT FOR
JUNE – DECEMBER 2000
WIPP HAZARDOUS WASTE FACILITY PERMIT
EPA I.D. NUMBER NM4890139088**

Dear Dr. Triay and Mr. Lee:

On March 23, 2001, the New Mexico Environment Department's (NMED) Hazardous Waste Bureau (HWB) received "WIPP Groundwater Detection Monitoring Program Semiannual Groundwater Monitoring Report", Round 11, September to November 2000. The Permittees submitted this report in compliance with Permit Condition V.J.2.a.

Attached are NMED's comments on this report. Will Fetner of my staff spoke with Stewart Jones, Environmental Monitoring Manager for Westinghouse TRU Solutions, on May 25, 2001 regarding the general nature of our review. NMED believes that the majority of the issues raised in the comments can be resolved through informal discussion between our respective staffs. However, NMED requests a formal written response to those comments which both parties agree that written clarification or response in the record is appropriate.

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Dr. Inés Triay
Mr. John Lee
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Please submit your response within thirty (30) calendar days from the date you receive this letter. NMED may consider a petition for a deadline extension, provided that a written justification and the expected submittal date are given.

If you have any questions regarding this matter, please contact Will Fetner at (505) 428-2520.

Sincerely,



Steve Zappe
WIPP Project Leader
Permits Management Program

Attachment

cc: James Bearzi, Chief, HWB
John Kieling, Manager, Permits Management Program, HWB
Susan McMichael, NMED OGC
Will Fetner, HWB
David Neleigh, EPA Region 6
Connie Walker, TechLaw, Inc.
WIPP File - Red '01' (Pam)

“WIPP Groundwater Detection Monitoring Program Semiannual Groundwater-Monitoring Report”, Round #11, September to November 2000, report dated March 2001

The above-referenced report presents the groundwater analytical results and statistical calculations from Round #11 of the WIPP DMP. The report uses previous Rounds #1 through #10 for baseline background comparisons (see “WIPP RCRA Groundwater Quality Baseline Update Report – Addendum 1”, dated November 3, 2000). All DMP designated wells (total of seven) were successfully sampled during this event (WQSP-1 through WQSP-6 and WQSP-6A) for all parameters required in the Hazardous Waste Facility Permit (HWFP). TraceAnalysis, Inc. was the contracted laboratory for Round #11 (TraceAnalysis and two other laboratories conducted previous analyses for Rounds #1 through #10). As in other events, the laboratory experienced problems with some of the analyses (highly variable sample dilutions and associated parameter detection limits) due to high-salinity groundwater (brines) peculiar to the Culebra Member of the Rustler Formation. Re-analysis of several parameters had to be performed, particularly in WQSP-3. Analytes initially showing concentrations exceeding baseline concentrations were K, Na, Ca, Mg, SC and TDS. After several runs at different dilution ratios and the re-run of quality control samples, the lab reported all parameter concentrations within the expected concentration ranges (baseline ranges). CBFO states in the report that the laboratory has “developed a better and more consistent internal analytical practices to manage WIPP’s high TDS groundwater”. Note that VOCs and SVOCs concentrations continue to be below method detection limits.

The addendum contains four text sections (1.0 Introduction, 2.0 Background Groundwater Analyses, 3.0 Round 11 Groundwater Analyses, and 4.0 Water-Chemistry Analytical Results and Concentration Plots) and attachments containing laboratory analytical results and graphs/plots for each of the DMP wells.

In general, the report is technically adequate except for some relatively minor comments and noted inconsistencies in the attachments. Following are NMED’s comments on the subject report:

1. Section 1.0, 3rd paragraph, pg. 1 – In the sentence: “The previous data represent, at least in part, the natural undisturbed background water-quality around the WIPP facility.”, explain the meaning of “at least in part” statement. Is this referring to analyses complications by the lab due to high salinity content in the groundwater?
2. Section 2.0, 4th paragraph, last sentence, pg. 3 - The sentence is not completely accurate: box-whisker-time trend charts were sometimes prepared for constituents exhibiting nonparametric distributions (examples: fluoride, TOC and TOH for WQSP-1, etc.). In the baseline background reports, the charts appear to have been prepared more based on the percent of non-detects than in the distribution type (in general, charts were prepared as long as non-detects were less than 50%). Please clarify.
3. Section 2.0, 7th paragraph, 2nd sentence, pg. 4 - Where do the stated TDS ranges for the Culebra groundwater come from (17,000 to over 220,000 mg/L)? The WIPP November 3, 2000, baseline

addendum report presented a TDS range of 12,000 to 281,000 mg/L; the subject report appears to depict a range of 16,000 to 240,000 mg/L.

4. Section 3.0, 1st paragraph, parameter list, pg. 5 - Just an observation: cresols and MEK are reported in the laboratory analysis reports as 2-methylphenol and 4-methylphenol for cresols and 2-butanone for MEK.
5. Section 3.0, 2nd and 3rd paragraphs, pg. 5 and 6 - Regarding laboratory reports:
 - The report does not contain any write-up on data validation by the Permittees' contractors (precision/accuracy, holding times, percent recoveries, and other QA/QC checks). NMED requests a copy of the validation report for Round #11.
 - Are the "summary of laboratory quality assurance analyses" and the "summary of any laboratory problems encountered and associated corrective actions" stated in page 5 supposed to be included on the Analytical Report Index or inventory sheets? Cannot locate this information.
 - Cannot locate the analyst names in the laboratory reports.
 - Cannot locate "discussions of the comparison of Round 11 results with respect to historical background data".
 - Some laboratory reports appear to be inconsistent in their contents:
 - Missing some table of contents (inventory sheets for VOCs, SVOCs, metals and/or classicals analyses for WQSP-1 through WQSP-5)
 - The Chain-of-Custody, Request for Analysis form and cation and anion calculation sheet are missing for WQSP-1
 - Note that the Chain-of-Custody forms for WQSP-5 and WQSP-6a were not signed as relinquished by the sampling team members
 - QA/QC samples are not well identified in the reports: lab control samples, method blanks, MS/MSDs, surrogates and duplicates, field rinseate blanks, field trip blanks, field source blanks, etc. Also, there are no narratives about technical problems affecting data quality, laboratory quality checks, corrective actions (if applicable), results of quality control sample analyses. Per Attachment L (Section L-5a) of the HWFP, all analytical results should be provided to NMED.
6. Section 3.1, 2nd and 3rd sentences, pg. 6 - Based on Table 1, note that VOC detection limits ranged from 1.0 to 2.0 µg/L and MEK detection limits ranged from 2.00 to 5.00 µg/L.

7. Section 3.2, 1st paragraph, pg. 6:

- It would be helpful to identify somewhere in the report which parameters for each well were re-analyzed due to high TDS brine/dilution factors. Table 3 would be a good location for identifying re-analyses.
- Recommendation: the Permittees may want to include with the semiannual reports an official letter from the laboratory (TraceAnalysis, Inc.) describing the problems encountered during the analysis of the samples due to the high salinity content of the groundwater. This official statement from the laboratory will not only make the report more complete but it may also appease the general public in explaining the reason why the recently-submitted class 2 modification to the WIPP HWFP was necessary (modification submitted on March 6, 2001, requesting an extension on groundwater reporting requirements from 60 to 120 days).

8. Section 3.2, 2nd paragraph, 2nd sentence, pg. 6 - Is it safe to assume that no holding times were exceeded by the numerous re-runs conducted by the laboratory? (NMED is concerned with constituents other than metals that have holding times less than 6 months).

9. General question - Please identify the other two laboratories (and their respective geographical location) used in DMP prior to TraceAnalysis, Inc.

10. Section 3.2, 6th paragraph, pg. 9 - Please include the numbers used for the calculation of T_n outlier values for the analytes shown in Table 3. It appears that only potassium from well WQSP-1 exceeded the 95th UTLV. What is “the critical value based on the number of observations in the data set” for this analyte?

11. NMED performed a random check of values presented in Table 3 with those presented in the attachments of the report (laboratory reports and CBFO’s plots and tables) and the baseline background concentrations reported in the November 3, 2000 addendum. Following are comments on Table 3, pg. 10–12:

- What criteria were used for the decision of re-analyzing samples? Using WQSP-1 as an example, the original concentrations for metals (Ca, Mg and K) presented in the attachments were all below their respective 95th UTLV. Note that the re-analysis for K (815 mg/L sample and 823 mg/L duplicate) exceeded the 95th UTLV for this analyte (799 mg/L). As stated in Comment #7 above, 1st bullet, it would be very helpful to identify in this table those parameters that were re-analyzed due to high TDS brine/dilution factors.
- For WQSP-1, where do the duplicate metal concentrations (Ca, Mg and K) shown in Table 3 come from? Original and re-run concentrations do not agree with the values presented in Table 3. Other examples: where do the sample and duplicate concentrations for TDS for WQSP-1 come from? Where are the laboratory reports supporting the concentrations shown in Table 3 for Ca, Mg, and Na

at WQSP-3 (sample and duplicate)? At times, concentrations presented in Table 3, laboratory reports, and the Permittees' plots and tables do not agree with each other.

- Note that sometimes the 95th UTLV column uses the 95th percentile value due to non-parametric distributions (e.g., TOC and TOH for WQSP-1, etc).
- Where does the 95th UTLV value for Mg for WQSP-4 came from? Based on the WIPP November 3, 2000, baseline addendum report, the 95th UTLV for Mg should be 1,472 mg/l (1,409 mg/l for the 95th percentile).
- It appears that the 95th percentile value was used for alkalinity at WQSP-6a (111 mg/L); is there any reason why the 95th UTLV of 113mg/L was not used?
- The reported TDS sample concentration for WQSP-4 (16,000 mg/L) is wrong according to report attachments: it should be 110,000 mg/L instead of 16,000 mg/L.

See attachment 1, which is a copy of Table 3, for the location of some of the comments stated above. Note that only a random spot check was performed by NMED and that other inconsistencies could exist.

12. Regarding the box-whisker plots/time trend charts:

- Round #10 and Round #11 results are depicted as independent points in the charts; is it correct that the box-whisker plots on the left side of the charts reflect the data from Round #10 as part of the baseline background?
- Some inconsistencies in statistical values have been observed in the charts when compared to the WIPP's November 3, 2000, baseline addendum report. Examples: 1) WQSP-1 chart for alkalinity: the maximum and minimum values should be 55.0 and 46.0 mg/L, respectively, based on the baseline addendum; 2) TDS for WQSP-1: maximum should be 260,000 mg/L from Round #10, median should be 66,650 mg/L.
- Shouldn't the statistical values from the table on the upper right corner (last set of charts showing individual results from each sampling event) be the same as those in the box-whisker plots/time trend charts? Both sets of statistical values should depict background baseline results. Several inconsistencies are found in WQSP-1 when comparing maximums, minimums and median values (e.g., boron, calcium, chloride, fluoride, etc.).

It should be noted that NMED only conducted random spot checks on the above charts and that by no means it signifies that NMED has uncovered all possible inconsistencies and/or errors.

13. NMED realizes that the following have not been requested from previous groundwater DMP reports and that this information may be available from different sources (HWFP Attachment L, Attachment P, CBFO EM Section). In order to have a more complete picture of conditions at the site and have a better

idea of the sample collection and reporting process, NMED requests the following data for Round #11 and/or future groundwater sampling events:

- For Round #11, NMED would like to request well purging/sampling detail forms for each well sampled. The well purging/sampling detail form should include such information as: sampling well, sampling date and time, sampling personnel, well purging information (depth to water, well depth, water column, purging rate and equipment used, total volume purged, etc.), field parameter testing results (as applicable: pH, SC, temperature, redox, chloride, etc.), sample collection tool(s), sample kit description and preservatives, analytical methods to be requested for each parameter, and other relevant information associated with the purging/sampling process (we realize some of this information is contained in the chain-of-custody and request for analysis forms).
- In the future, some text could maybe be provided regarding the direction of groundwater flow prior to sampling (specifically in the Culebra Dolomite; this could be based on the latest monthly water level measurement event being implemented by the WIPP). Historical trends in groundwater flow direction could also be discussed.
- For informational purposes, perhaps include a table depicting well construction details such as: well diameter, total depth, construction material, screen interval, construction date, filter pack, seal and grouting details, etc.

ATTACHMENT A

Table 3
Round 11 Analytical Data Summary (mg/L)

Chemical	Concentration		95 th UTLV	Tn Outlier Value	Pass/Fail
	Sample	Duplicate			
WQSP-1 Metals					
Calcium	lab 1760	lab 1,670 ✓ 1,620 1,640 ?	2,087 ✓	NA	Pass
Magnesium	1200	1,090 ✓ 1,120 1,060 ? 1100	1,247 ✓	NA	Pass
Potassium	717	(815) ✓ 687 791 ? 823	799 ✓	2.4	Pass
Sodium		19,000 ✓ 18,600 ✓	22,090 ✓	NA	Pass
WQSP-1 General Chemistry					
Alkalinity	50 ✓	52 ✓	55.8 ✓	NA	Pass
Chloride	36,000 ✓	34,000 ✓	40,472 ✓	NA	Pass
PH (S.U.)	7.3 ✓	7.3 ✓	8.8 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	84,000 ✓	81,000 ✓	175,000 ✓	NA	Pass
Total Dissolved Solids	63,000 ?	67,000 ?	80,700 ✓	NA	Pass
Total Organic Carbon	<1.0 ✓	<1.0 ✓	<5.0 ✓	95% NA	Pass
Total Organic Halogens	2.1 ✓	2.1 ✓	14.6 ✓	95% NA	Pass
WQSP-2 Metals					
Calcium	1,460 ✓	1,530 ✓	1,827 ✓	NA	Pass
Magnesium	982 ✓	1,040 ✓	1,244 ✓	NA	Pass
Potassium	815 844 ✓	822 837 ✓	845 ✓	NA	Pass
Sodium	19,800 ✓	20,300 ✓	21,900 ✓	NA	Pass
WQSP-2 General Chemistry					
Alkalinity	51.0 ✓	48.0 ✓	70.3 ✓	NA	Pass
Chloride	37,000 ✓	36,000 ✓	39,670 ✓	NA	Pass
PH (S.U.)	7.3 ✓	7.3 ✓	7.6 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	81,000 ✓	80,000 ✓	124,000 ✓	NA	Pass
Total Dissolved Solids	62,500 ✓	62,500 ✓	80,500 ✓	NA	Pass
Total Organic Carbon	1.1 ✓	<1.0 ✓	7.97 ✓	95% NA	Pass
Total Organic Halogens	5.7 ✓	3.6 ✓	202 ✓	NA	Pass
WQSP-3 Metals					
Calcium	1410 1,280 ?	1,360 ? 1420	1,680 ✓	NA	Pass
Magnesium	2120 2,040 ?	2,180 ? 2140	2,625 ✓	NA	Pass
Potassium	2,880 ✓	3,030 ✓	3,438 ✓	NA	Pass
Sodium	6500 77,900 ?	77,800 ? 62300	140,400 ✓	95% NA	Pass

← ONLY EXCEEDANCE OF 95th UTLV

Refer to footnotes at end of table.

found in chart only

* TABLE SHOULD INDICATE WHAT PARAMETERS WERE RE-ANALYZED

* TABLE IS SUPPOSED TO SHOW ONLY ANALYTES w/ CONCENTRATIONS NEAR OR AT THE UPPER LIMITS OF THE CONCENTRATION RANGES.

Table 3 (Continued)
Round 11 Analytical Data Summary (mg/L)

Chemical	Concentration		95 th UTLV	Tn Outlier Value	Pass/Fail
	Sample	Duplicate			
WQSP-3 General Chemistry					
Alkalinity	35 ✓	36.0 ✓	54.4 ✓	NA	Pass
Chloride	130,000 ✓	130,000 ✓	149,100 ✓	NA	Pass
PH (S.U.)	6.9 ✓	6.9 ✓	7.2 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	200,000 ✓	180,000 ✓	517,000 ✓	NA	Pass
Total Dissolved Solids	220,000 ✓	240,000 ✓	261,000 ✓	NA	Pass
Total Organic Carbon	<1.0 ✓	<1.0 ✓	<5.0 ✓ ← 95%	NA	Pass
Total Organic Halogens	1.1 ✓	5.7 ✓	55.0 ✓	NA	Pass
WQSP-4 Metals					
Calcium	1,560 ✓	1,550 ✓	1,834	NA	Pass
Magnesium	1,190 ✓	1,180 ✓	1,432? 1472	NA	Pass
Potassium	1320 1,450 ✓	1320 1,440 ✓	1,648 ✓	NA	Pass
Sodium	30,700 ✓	26,100 ✓	38,790 ✓	NA	Pass
WQSP-4 General Chemistry					
Alkalinity	36 ✓	40 ✓	47.1 ✓	NA	Pass
Chloride	60,000 ✓	54,000 ✓	63,960 ✓	NA	Pass
pH (S.U.)	7.2 ✓	7.2 ✓	7.6 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	120,000 ✓	120,000 ✓	319,800 ✓	NA	Pass
Total Dissolved Solids	110,000? 16,000 ✓	110,000 ✓	123,500 ✓	NA	Pass
Total Organic Carbon	<1.0 ✓	<1.0 ✓	<5.0 ✓ ← 95%	NA	Pass
Total Organic Halogens	8.8 ✓	8.9 ✓	84.1 ✓	NA	Pass
WQSP-5 Metals					
Calcium	1,020 ✓	1,010 ✓	1,303 ✓	NA	Pass
Magnesium	454 ✓	462 ✓	547 ✓ ← 95%	NA	Pass
Potassium	348 ✓	337 ✓	622 ✓	NA	Pass
Sodium	9,040 ✓	8,750 ✓	11,190 ✓	NA	Pass
WQSP-5 General Chemistry					
Alkalinity	46 ✓	48 ✓	56.0 ✓	NA	Pass
Chloride	16,000 ✓	16,000 ✓	18,100 ✓	NA	Pass
PH (S.U.)	7.6 ✓	7.6 ✓	7.9 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	44,000	43,000 ✓	67,700 ✓	NA	Pass
Total Dissolved Solids	40,000 ✓	36,000 ✓	43,950 ✓ ← 95%	NA	Pass
Total Organic Carbon	<1.0 ✓	<1.0 ✓	<5.0 ✓	NA	Pass
Total Organic Halogens	2.9 ✓	2.0 ✓	8.37 ✓	NA	Pass

Refer to footnotes at end of table.

Table 3 (Continued)
Round 11 Analytical Data Summary (mg/L)

Chemical	Concentration		95 th UTLV	Tn Outlier Value	Pass/Fail
	Sample	Duplicate			
WQSP-6 Metals					
Calcium	694 ✓	695 ✓	796 ✓	NA	Pass
Magnesium	226 ✓	236 ✓	255 ✓	NA	Pass
Potassium	188 ✓	185 ✓	270 ✓	NA	Pass
Sodium	4,120 ✓	4,280 ✓	6,290 ✓	NA	Pass
WQSP- 6 General Chemistry					
Alkalinity	48 ✓	50 ✓	55.8 ✓	NA	Pass
Chloride	5,500 ✓	5,500 ✓	15,800 ✓ ← 95%	NA	Pass
PH (S.U.)	7.7 ✓	7.8 ✓	7.9 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	21,000 ✓	21,000 ✓	27,660 ✓	NA	Pass
Total Dissolved Solids	16,000 ✓	17,000 ✓	22,500 ✓	NA	Pass
Total Organic Carbon	<1.0 ✓	<1.0 ✓	10.14 ✓ ← 95%	NA	Pass
Total Organic Halogens	0.29 ✓	0.43 ✓	1.54 ✓	NA	Pass
WQSP-6a Metals					
Calcium	655 ✓	658 ✓	733 ✓	NA	Pass
Magnesium	168 ✓	159 ✓	188 ✓	NA	Pass
Potassium	3.28 ✓	2.97 ✓	10.1 ✓	NA	Pass
Sodium	258 ✓	250 ✓	369 ✓	NA	Pass
WQSP- 6a General Chemistry					
Alkalinity	108 ✓	102 ✓	111 ✓ ← 113 95 th UTLV ← 95%	NA	Pass
Chloride	480 ✓	480 ✓	6,723 ✓ ← 95%	NA	Pass
PH (S.U.)	7.8 ✓	7.8 ✓	8.0 ✓	NA	Pass
Specific Conductance (uMHOs/cm)	4,300 ✓	4,300 ✓	5,192 ✓	NA	Pass
Total Dissolved Solids	3,700 ✓	3,800 ✓	11,000 ✓ ← 95%	NA	Pass
Total Organic Carbon	<1.0 ✓	<1.0 ✓	15.45 ✓ ← 95%	NA	Pass
Total Organic Halogens	0.05 ✓	0.04 ✓	0.19 ✓	NA	Pass

95th UTLV = 95th upper tolerance limit value.
 mg/L = Milligram(s) per liter.
 NA = Not applicable.
 Tn = T sub n statistical outlier test,