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**Subject:** Preliminary VZMS WP  
Responses

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**Preliminary Comment Responses**  
**Draft Vadose Zone Monitoring System Work Plan**  
**Triassic Park Waste Disposal Facility**  
**February 1, 2000**

No.	Comment Summary	Response	Discussion Issues
<b>GENERAL COMMENTS</b>			
1	Cover letter to WP must state how the WP will be incorporated into permit.	A cover letter has been prepared stating the WP is included as an appendix to the permit application.	
2	Notify NMED immediately if groundwater is encountered during construction of VZMS.	The WP has been revised to state that NMED will be notified immediately (within 24 hours) if any groundwater is encountered during drilling or monitoring well construction. This is stated in the Introduction and wherever applicable elsewhere in the document.	
3	Expanded CSM within WP.	The CSM is included in Section 3.0 of the permit application (revised November 1998). We will ensure that Section 3.0 contains the most comprehensive and up-to-date information (i.e., includes all the information presented in the Groundwater Monitoring Final Waiver Request). A discussion of the water observed in borehole PB-39 has also been added.	One issue that needs to be discussed further is that concerning fluid transport along interlayered siltstones and mudstones within the upper Dockum above the lower contact.
4	GMI response to fluids detected in VZMS.	Additional detail is included in the WP concerning response actions with references to the permit application, where applicable.	
5	Cross-referencing within the WP and with permit application.	Appropriate cross-references have been added to the WP.	
6	More thoroughly address reporting, scheduling, operation, maintenance, inspection and record-keeping.	Additional detail has been added to the WP, as well as references to the permit, in accordance with 40 CFR 270.30 and 270.31, as presented in NMED's comment.	
7	4 additional monitoring wells: 3 shallow (alluvium/Dockum etc.) and one deep.	<i>See discussion issues.</i>	It was our understanding that an agreement had been reached between GMI and NMED to evaluate/monitor the alluvium/Upper Dockum contact during excavation for the landfill. Given the northeast dip of the U/L Dockum contact, a deep well at the NE corner of the landfill is worth considering.
8	Abandonment of boreholes.	<i>Pending information.</i>	
<b>SPECIFIC COMMENTS</b>			
1	"Report" should be changed to "Work Plan"	Text revised accordingly.	
2	State contingencies if fluids appear in VZMS, or ref. permit section.	A bullet has been added to state that the Work Plan "addresses contingencies if liquid (contaminated or not) are detected in the VZMS."	Additional detail will be added to the WP to describe the actions to take if liquids are detected in the VZMS, including liquids determined to be contaminated. Alternatively, this detail could be included in the permit

			application, with appropriate references in the WP.
3	Editorial.	Text revised accordingly.	
4	Editorial.	Text revised accordingly.	
5	Editorial.	Text revised accordingly.	
6	Editorial.	Text revised accordingly.	
7	Editorial.	Text revised accordingly.	
8	Clarify use of term leachate. Also, clarify characterization of evaporation pond waters.	The text has been revised to indicate "extract" when referring to fluids generated from the MWMTP. Section 3.0 has been expanded to discuss how and when evaporation pond liquids will be characterized.	
9	Editorial.	Text revised accordingly.	
10	Editorial.	Text revised accordingly.	
11	Editorial.	Text revised accordingly.	
12	Editorial.	Text revised accordingly.	
13	Editorial.	Text revised accordingly.	
14	Editorial.	Text revised accordingly.	
15	Editorial.	Text revised accordingly.	
16	Editorial.	Text revised accordingly.	
17	WP implies that a basal sand unit does not exist, but one does. Whether it is the SR sandstone or not is controversial.	The WP now references the basal sand unit encountered during the characterization program and does not reference the Santa Rosa Sandstone (i.e., does not say whether or not the basal sand unit is the SRS).	
18	WP must discuss the groundwater that was encountered during the characterization study.	Text revised to reference Section 3.0 of the permit application. We will ensure that Section 3.0 is complete and includes a discussion of the water encountered during the characterization study.	Groundwater encountered during characterization studies is discussed in Section 3.0 of the permit application.
19	Editorial.	Text revised accordingly.	
20	Editorial.	Text revised accordingly.	
21	Discuss use of landfill sump transducers.	References to the landfill sump transducers discussed in the application have been added to the WP, as applicable. O&M of the sumps and transducers is included in the O&M manual.	
22	Editorial.	Text revised accordingly.	
23	NMED has no specific permit requirements for monitoring wells.	This sentence has been deleted from the WP.	
24	Dual-wall percussion hammer drilling may preclude geophysics.	Text revised to indicate that an air rotary rig without an outer casing will be used.	Both the Ingersoll Rand air rotary rig and the AP-1000 (dual-tube percussion hammer) without the outer casing are appropriate rigs to use at the site.
25	Collect soil samples from drill cuttings for background chemical analysis.	The Work Plan has been revised to indicate that Dockum drill cuttings will also be used for background soil sampling and analysis.	
26	Specify which geophysical tools will be used.	Natural gamma, thermal neutron and caliper.	
27	Sentence presupposes dual-wall percussion air drilling.	See response to Specific Comment #24.	
28	Hang well pipe for tension	Text revised to indicate that the wells	

	during construction in order to avoid bending of casing.	will be installed by hanging them off the bottom of the borehole during emplacement of the annular space materials and that centralizers will be used to ensure a straight well pipe.	
29	Use of schedule 80 PVC instead of schedule 40.	Text revised to indicated that Schedule 80 PCV will be used for any well deeper than 150 feet bgs.	
30	Well screened interval should extend across the U/L Dockum contact and reach up to within 10 feet of the Upper Dockum/alluvium contact.	<i>See discussion column.</i>	It has been our understanding that the criteria for screening within the Dockum Formation was to screen across the U/L Dockum contact; not up into the Upper Dockum, beyond the contact. The Upper Dockum is as much as 100 feet thick within the site and therefore the criteria in NMED's comment would require upwards of 100 feet of screen.
31	Sentence presupposes dual-wall percussion air drilling.	See response to Specific Comment #24.	
32	NMED cautions against hydrating bentonite pellets or putting any fluids down borehole.	Text revised to state that the filter pack will be overlain with 3 feet of very fine grained sand in order to prevent migration of annular seal material into the filter pack. The very fine grained sand will not require hydration.	
33	Use stand-pipes instead of flush-mounts for well heads.	Text revised to state that all well heads will be completed with stand-pipes.	
34	Shallow wells nested with the deep wells.	See response to General Comment #7.	
35	Additional well construction details.	Bullet added, as stated in the comment.	
36	Show locations of 4 additional wells on Figure 2.	See response to General Comment #7.	
37	Show stand-pipes in well construction; Figure 2.	Figure 2 revised.	
38	Be specific on mixture for well seal.	The WP has been revised to indicate that a high solids (approximately 10%) bentonite grout (e.g., Aquaguard or equivalent) with a weight in the range of eleven to thirteen pounds per gallon of sealant will be used.	
39	Revise well construction diagram on Figure 2 to reflect previous comments. Include centralizers.	Figure 2 revised.	
40	Schedule for baseline characterization of landfill leachate and evaporation pond liquids. Liner compatibility issues.	A more detailed schedule has been added to the WP.	Liner compatibility issues are discussed in the permit application.
41	Editorial.	Text revised accordingly.	
42	Use of cuttings samples for background characterization.	<i>See issues column.</i>	It is not clear to us what is being asked for here. Is NMED suggesting that the cuttings be used for testing of the cuttings themselves (i.e., solids)?
43	Editorial.	Text revised accordingly.	

44	Analyze for total metals, not dissolved.	The Work Plan has been revised to state that both total and dissolved metals will be analyzed and that the results of those analyses will be used to evaluate whether it is necessary to continue analyzing for both (i.e., subsequent analyses may only be for one, dissolved or total)	
45	Editorial.	Text revised accordingly.	
46	Characterize evaporation pond liquids.	See issues column.	It appears that a description of the characterization of evaporation pond liquids needs to be added to either the permit application or the WP.
47	Use appropriate method numbers (i.e., solid waste methods).	Text revised to include water or waste water method numbers.	
48	More detail on how the VZMS will be monitored and increase maintenance and record keeping commitments.	A subsection has been added (Monitoring Methods) that provides additional details on how the sumps and wells will be monitored.  Additional detail has been added concerning the use of the landfill sump transducers. No transducers are planned for the monitoring wells; the wells will be monitored visually and through the use of a water level meter.  A reference to maintenance and record keeping has been added to this section.	
49	Increase monitoring frequency if ALR is exceeded.	See issues column.	Needs discussion and consensus. See RAP.
50	Make monitoring frequency and duration of evaporation pond wells the same as landfill wells.	See issues column.	Does it make sense to not abandon these wells and use them for monitoring during closure and post-closure.
51	Editorial.	Text revised accordingly.	
52	Additional action if fluids are detected in well sumps.	Text revised to state that any fluids detected in the monitoring well sumps will be identified and removed completely.	
53	Editorial.	Text revised accordingly.	
54	Use of EPA certified laboratory and Level IV data validation.	The Work Plan has been revised to include a description of the data validation program we intend to use.	SW-846 Chapter 1 does not describe data validation levels and in fact over the years, there have been several versions of data validation levels published (EPA, personal communication, 4/6/00). Please provide us with an alternate reference or description of your specific data validation needs.
55	Clarification of types and use of pumps in the sumps and wells.	The text has been revised to clarify the types of pumps to be used in the landfill sumps.  No dedicated pumps are planned for the well sumps.	

56	Commitment on use of and frequency of purge parameter measurements.	Text revised to state that field parameters will be measured every 2 to 5 minutes.	
57	Purging of 3 well volumes versus parameter stabilization.	Text revised to state that purging will cease once field parameters have stabilized or once 3 casing volumes have been removed, whichever occurs first.	
58	Duplicate sample.	Text revised to state that a duplicate sample will be collected for each parameter at a rate of once a day or ten percent of the total number of samples collected, whichever is greater.	
59	Specify type of "blank" sample.	Text revised to indicate that "Trip and temperature blanks will be included with each shipment. Trip blanks will only be included in coolers containing samples for analysis of organic compounds and will be analyzed using the same method(s) as the organic samples."	
60	Return COC to facility records.	Text revised to state that an original copy of all COCs will be kept in the facility records.	
61	Editorial.	Text revised accordingly.	
62	Record keeping protocol.	Text revised to state that all records will be kept in the facility records.	
63	Editorial.	Text revised accordingly.	
64	Level IV data validation.	See response to comment #54.	
65	Include an Executive Summary with the report.	Text revised to state that an executive summary will be included with each data report that summarizes the major findings during the reporting period.	
66	Data report must include all historical data.	Text revised to state that all historical data will be included in the report in such a manner that makes it possible to readily compare them to the current data.	
67	All data storage to be part of facility record.	Text revised to state that all data storage associated with the WP will be included in the facility records and maintained through the post-closure period of the facility.	
68	Editorial.	Text revised accordingly.	
69	Explain MWMP statement that it may not be suitable for obtaining extracts from finely divided solids.	If the material is determined to be such that proper percolation does not occur with the normal MWMP method (column leaching) an alternate method will be used (i.e., bottle roll).	