New Mexico Health and Environment Department

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Director

August 22, 1989

VXI

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ENTERED

David E. Benson, Commander
Headquarters 27th Combat Support Group
Cannon Air Force Base, NM 88103

Dear Colonel Benson:

Enclosed is the New Mexico Environmental Improvement Division's (NMEID) review of the revised March 21, 1989 Sampling and Analysis Plan.

In general the plan is deficient in details on sampling procedures and field and laboratory quality assurance/quality control (QA/QC). An example sampling and analysis plan is enclosed for review and illustration of adequate detail. Cannon could provide NMEID with a diskette, and a copy of the Sampling and Analysis plan could be provided to Cannon for adaptation to Cannon's site and sampling conditions. A copy of the Sampling and Analysis portion of the Comprehensive Groundwater Monitoring checklist (CME) is also enclosed for Cannon's review.

If you have any questions or need additional information please call or write Suzanne Moore-Mayne at (505) 827-0170.

Sincerely,

Boyd Hamilton

Boyd Hamilton
Program Manager
Hazardous Waste Program

BH:SMM:smm

enclosures

cc: Bobby Williams, Region VI

Please contact Mike Clemmer on this

— ENVIRONMENTAL IMPROVEMENT DIVISION —
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

Review of Cannon AFB's March 21, 1989 Revised Sampling and Analysis Plan

Revised plan

1) S & A Plan **Section A** Preparation

adequate

Comment Define how each of the items listed under A.1. will be utilized.

2) S & A Plan A.1.a. Metal faucets

not addressed

Comment Metal faucets are unacceptable for sample collection points. Use of a submersible pump to collect samples is unacceptable.

3) S & A Plan A.1.d. Hach DREL/5 kit

adequate

Comment The pH, specific conductivity and temperature meters used must be accurate to 0.01 for pH and 10 umhos for specific conductivity. The results must be repeatable (See enclosed Sample & Analysis plan, S & A plan)

4) S & A Plan A.2. Sample number for each well

Comment A sample number should be assigned to each sample not to each well. A well may be sampled several times for different parameters and each sample must have a unique sample number. Each well must also have a unique identification number.

adequate

Base Sample log is bound only for sample #s. What about field log book?

Logbooks should be bound documents with numbered pages. See enclosed S & A Plan for information to be included in the logbook.

5) S & A Plan A.3.a. Cleaning of sample containers - glass bottles

missing acetone + pesticide grade hexane rinse? how important is this?

Comment Containers used to collect organics should be washed with hot water and a nonphosphate detergent, rinsed with tap water, distilled water, acetone and pesticide-quality hexane. Then glassware should be treated with chromic acid and/or baked in a muffle furnace at 400 degrees C for 15 to 30 minutes. Glassware must be thoroughly rinsed with water to remove chromic acid (if treated with acid).

this is method out of 7020 which CAFB is using

6) S & A Plan A.3.b. Cleaning of sample containers - cubitainers for metals

Comment Containers used to collect metals should be

thoroughly washed with nonphosphate detergent and tap water and rinsed with a HN03 (1:1 with water) solution, tap water, HCl, tap water, and Type II water.

7) S & A Plan **Section B** Sample Collection

EID suggests Cannon AFB include a section describing the sampling device(s), and decontamination procedures for non-dedicated sampling equipment. The portions of the sampling equipment in contact with the sample should be composed of inert material. The sample collection flow rate should also be discussed. The recommended flow rate is 100 ml/minute to minimize agitation and aeration of the sample. EID strongly suggests Cannon AFB review the TEGD for assistance in developing this portion of the S & A Plan.

8) S & A Plan B.1. Sample upgradient well...sampling equipment or supplies...

Comment: Spread plastic sheeting on the ground to lay equipment and supplies on.

Said no to but provided no explanation as to what to do.

9) S & A Plan B.4. Depth to water...

Comment Determine the total depth of the well to the nearest 0.25 foot each time the well is sampled.

Procedures for sampling immiscible layers have not been included. See the TEGD and the enclosed S & A Plan for guidance on the procedures and sampling methods.

10) S & A Plan B.5. Well evacuation

Comment What are five <u>wetted</u> well volumes?

CAFB should determine if the well is sufficiently purged by determining if the specific conductance, pH, and temperature has stabilized (see procedure outlined in enclosed S & A plan).

Some response

Describe the tanks that are to be used to collect the purge water. The description should include size, type of material and configuration of tank. How will Cannon AFB determine if the purge water is contaminated? What will be the standards used? How will DRMO dispose of the contaminated purge water. EID strongly suggests that the purge water

CAFB misinterpreted this?

be containerized until the analyses have been completed. If the purge water contains any hazardous constituents, then the water should be disposed of as a hazardous waste.

11) S & A Plan B.7. Sample collection order

Comments Foil should be put on the mouth of the bottle after cleaning, not after sample collection. After samples are collected in glass bottles, use the caps required for sealing the containers as outlined in the attached Sampling Protocal Checklist in the S & A PLan. TOX and TOC containers should be closed with a teflon-lined cap. TOC should be preserved with HCl to pH < 2.

OK

~~TOX type of container must be specified~~

In Tables I, II, and III, maximum holding times and extraction times should be added to the tables. A consistant unit of volume should be chosen (liter or quart, not both) Turbidity should be added as a measurement on the list. Volatiles and semi-volatiles should be added to these tables and included in the S & A Plan since Cannon AFB has submitted their post closure permit application. EID has made additional comments on enclosed copies of the tables.

Turbidity not added and VOA + ABN not added. Per SW-846 must be ext w/in 7 days

Note E. TOX must be extracted within 7 days and extracts must be analyzed within 40 days.

Note F. Each sample or replicate must have a unique sample number.

OK

(12) S & A Plan B.8. Trip Blanks

OK

Comments Refer to the enclosed S & A Plan for when trip blanks are appropriate and how to collect and analyze them.

Section C Forms, Packaging, and Shipping

13) S & A Plan C.1. Analysis request forms

Comments Copies of the forms discussed should be included in the plan.

Analysis request forms should include facility name; sample identification number or name of well(s); date and time of collection if different from sample identification number; identification number or name of well(s); number of containers

and parameters required (e.g., VOA, total metals);preservatives used or required; internal temperatures or presence of ice in shipping container upon opening at the laboratory; signature, date, and time of receipt of collector and all person(s) in the chain of possession; and laboratory personel statement of the condition of seals at time of receipt at laboratory.

Total organic halides is not correct. The correct parameter is total organic halogens.

14) S & A Plan C.2. Packing and Shipping

Comments Refrigerator must keep samples at 4 degrees C and must be kept locked so that only chain-of-custody personnel have access. Samples should be packed in ice inside a sealed shipping container and sent to the laboratory by overnight express.

Section D Sampling frequency

15) S & A Plan D.1. Sampling for all parameters...

Comment Define which parameters are to be sampled.

16) S & A Plan Section E Recordkeeping and Reporting

These comments are not appropriate in the S & A Plan. Perhaps the development of an in-house groundwater monitoring program document would be more appropriate.

Variations from the TEGD preservatives

17) S & A Plan 2. TOX

Comments Only one analytical method should be used for each parameter to ensure repeatability, comparability and QA/QC.

General Comments

The S & A plan submitted does not include any field and laboratory Quality Assurance/Quality Control (QA/QC) program. The S&A plan must include a discussion of these issues. Copies of the analysis request forms, sample labels and

chain-of-custody forms should be attached to the S & A plan. A copy of the Brooks AFB laboratory's Quality Assurance/Quality Control plan should be attached also.

The cookbook nature of the revised S & A Plan is more appropriate for the standard operating procedure of the samplers. Perhaps a step by step outline of how to purge, collect, etc. could be included as an appendix to the S & A Plan. A copy of the Hazardous Waste Program's Sampling and Analysis Plan is enclosed to provide Cannon AFB with an example of the level of detail required in a S & A Plan. EID suggests Cannon AFB use the plan and the TEGD to develop the QA/QC portions of the plan and to provide information for responding to the above comments. Discussions of OVAs and respirators are not appropriate in the S & A Plan. EID suggests Cannon AFB develop a Safety Plan separate from the S & A Plan that is tailored to their situation.

Table I. dicators of Groundwater C[illegible]amination

PARAMETER	CONTAINER	PRE[illegible]ATION	VOLUME	NOTES
pH	-------	Field determined	25 ml	A
Specific Conductance	-------	Field determined	100 ml	A,B
TOC	Glass amber, Cap lined with foil	Cool, 4°C H_2SO_4 to pH < 2	1 liter 4x15 ml	A
TOX	Bottle supplied by OEHL	Cool, 4°C H_2SO_4 to pH < 2	4 x 4 oz 4x15 ml	C,D,E,F

NOTES

A. Four replicate analyses must be done.

B. Temperature reading must be taken into account to introduce a correction factor for specific conductance. Use the formula:

$$K = \frac{K(m) * C}{1 + 0.0191 * (T-25)}$$

Where K(m) = Specific conductance reading from the meter
C = Correction constant (C = 0.974 for our meter)
T = Temperature in celsius
K = Corrected specific conductance

AND $C = 5/9 * (F - 32)$

Where F = Temperature in farenheit
C = Temperature in celsius

C. No headspace allowed in container

D. TOX samples

1. Sample containers are 4 oz glass screw cap bottles with TFE flucrocarbon faced silicon septa liners. These containers will be supplied by USAF OEHL.

2. Collection

a. Fill the bottles in such a manner to avoid air bubbles passing through the sample as the bottle is overfilled.

b. Place the bottle on a level surface and position the TFE side of the septum liner on the convex meniscus of the sample. Seal the bottle by screwing the cap on tightly.

c. Invert the sample bottle and slightly tap the cap on a solid surface. The absence of any entrapped air indicates a good seal. If bubbles are present, open the bottle and collect another sample.

Table II. Groundwater Quality Characteristics

PARAMETER	CONTAINER	PRESERVATION	VOLUME	NOTES	Max Holding Time
Chloride, Sulfate	Polyethylene Cubitainer	Cool to 4°C	1 qt 500 ml		28 days
Iron, Manganese, Sodium	Polyethylene Cubitainer	HNO_3 to pH<2	1 qt 500 ml	A	6 months
Phenols	Glass	Cool to 4°C H_2SO_4 to pH<2	1 Liter 500 ml		28 days

NOTES:

A. Cubitainer must be rinsed with HNO_3 1:1 with water

Table III. Drinking Water Characteristics

PARAMETER	CONTAINER	PRESERVATION	VOLUME	NOTES	Maximum Holding Time
Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver	Polyethylene Cubitainer	HNO_3 to pH<2	~~1 qt~~ 1000 ml	A	6 month
Fluoride	Polyethylene Cubitainer	Cool to 4°C	~~1 qt~~ 300 ml		28 days
Nitrate	Polyethylene Cubitainer	Cool to 4°C H_2SO_4 to pH<2	1 qt 1000 ml	B	14 days
Endrin, Lindane, Methoxychlor, Toxaphene	Glass	Cool to 4°C adjust pH to between 5 & 9 w/ dilute HCl or NaOH	1 Liter 4L } 200 ml	C	
2,4 D, 2,4,5 TP, Silvex	Glass	Cool to 4°C	1 Liter } 200 ml	C	
Radium, Gross Alpha, Gross Beta	Polyethylene Cubitainer	Field acidified to pH<2 w/ HNO_3	1 Liter		
Coiform Bact.	Polypropylene Thio-bag	Cool to 4°C	100 ml	D	6 hrs
Turbidity	P,G	" "	200 ml		48 hrs
			200 ml		

NOTES:

A. Cubitainer must be rinsed with HNO_3 1:1 with water.

B. Maximum holding time is 14 days.

C. Maximum holding time is 7 days.

D. Maximum holding time is 6 hours. Samples will be analyzed in our BES Water Lab. DD Form 686 will be used to report results.

Subject: CAFB Revised S+A plan
Revised March 21, 1989

Reviewed by: V. Suzanne Moore-Mayne
Date: August 15, 1989

Comprehensive Ground-Water Monitoring Evaluation Worksheet

FACILITY NAME: Cannon Air Force Base
NM7572124454

Environmental Improvement Division
Hazardous Waste Section
1190 St. Francis Drive
Santa Fe, New Mexico 87503

(505) 827-2929

Review of Sampling and Analysis Procedures Only - Office Review.

NOTE: Make sufficient copies of page 29 as required by number of monitoring wells at this facility prior to field evaluations.

	Y/N
III. Review of Sample Collection Procedures	
A. Measurement of Well Depths /Elevation	
1. Are measurements of both depth to standing water and depth to the bottom of the well made? only water level	no
2. Are measurements taken to the 0.01 feet? water level probe only (see Add.)	yes
3. What device is used? electric well probe	
4. Is there a reference point established by a licensed surveyor?	yes
5. Is the measuring equipment properly cleaned betweenwll locations to prevent cross contamination?	yes
B. Detection of Immiscible Layers	
1. Are procedures used which will detect light phase immiscible layers?	no
2. Are procedures used which will detect heavy phase immiscible layers?	no
C. Sampling of Immiscible Layers	
1. Are the immiscible layers sampled separately prior to well evacuation?	no
2. Do the procedures used minimize mixing with watersoluble phases?	no ~~N/A~~
D. Well Evacuation	Not Applicable
1. Are low yielding wells evacuated to dryness? [illegible]	N/A
2. Are high yielding wells evacuated so that at least three casing volumes are removed?	yes
3. What device is used to evacuate the wells? permanently installed Grundfos pump	
4. If any problems are encountered (e.g., equipmenmalfunction) are they noted in a field logbook?	Unknown (UK)

	Y/N
E. Sample Withdrawal	
1. For low yielding wells, are samples for volatiles, pH, and oxidation/reduction potential drawn first after the well recovers?	N/A
2. Are samples withdrawn with either flurocarbon/resins or stainless steel (316, 304 or 2205) sampling devices?	no
3. Are sampling devices either bottom valve bailers or positive gas displacement bladder pumps? Samples are collected through permanently submersible pumps	no
4. If bailers are used, is fluorocarbon/resin coated wire, single strand stainless steel wire, or monofilament used to raise and lower the bailer?	N/A
5. If bladder pumps are used, are they operated in acontinuous manner to prevent aeration of the sample?	N/A
6. If bailers are used, are they lowered slowly to prevent degassing of the water?	N/A
7. If bailers are used, are the contents transferred to the sample container in a way that minimizes agitation and aeration?	N/A
8. Is care taken to avoid placing clean sampling equipment on the ground or other contaminated surfaces prior to insertion into the well?	yes
9. If dedicated sampling equipment is not used, is equipment disassembled and thoroughly cleaned between samples?	N/A
10. If samples are for inorganic analysis, does the cleaning procedure include the following sequential steps: a. Dilute acid rinse (HNO_3 or HCl)?11. If samples are for organic analysis, does the cleaning procedure include the following sequential steps:	U/K
11. If samples are for inorganic analysis, does the cleaning procedure include the following sequential steps: a. Nonphosphate detergent wash?	U/K
b. Tap water rinse?	
c. Distilled/deionized water rinse?	
d. Acetone rinse?	
e. Pesticide-grade hexane rinse?	N/

	Y/N
12. Is sampling equipment thoroughly dry before use?	ok
13. Are equipment blanks taken to ensure that sample cross-contamination has not occurred?	N/A
14. If volatile samples are taken with a positive gas displacement bladder pump, are pumping rates below 100 ml/min?	N/A
F. In-situ or Field Analyses	
1. Are the following labile (chemically unstable) parameters determined in the field:	
a. pH?	yes
b. Temperature?	yes
c. Specific conductivity?	yes
d. Redox potential?	no
e. Chlorine?	no
f. Dissolved oxygen?	no
g. Turbidity?	no
h. Other (specify) _____	N/A
2. For in-situ determinations, are they made after well evacuation and sample removal?	no
3. If sample is withdrawn from the well, is parameter measured from a split portion?	no
4. Is monitoring equipment calibrated according to mannufacturers' specifications and consistent with SW-846?	ok
5. Is the date, procedure, and maintenance for equipment calibration documented in the field logbook?	ok
IV. Review of Sample Preservation and Handling Procedures	
A. Sample Containers	
1. Are samples transferred from the sampling device directly to their compatible containers?	yes

	Y/N
2. Are sample containers for metals (inorganics) analyses polyethylene with polypropylene caps? No details on type of cap material	UK
3. Are sample containers for organics analysis glass bottles with fluorocarbonresin-lined caps?	no
4. If glass bottles are used for metals samples are the caps fluorocarbonresin-lined?	N/A
5. Are the sample containers for metal analyses cleanedusing these sequential steps:	
a. Nonphosphate detergent wash?	no
b. 1:1 nitric acid rinse?	yes
c. Tap water rinse?	no
d. 1:1 hydrochloric acid rinse?	no
e. Tap water rinse?	no
f. Distilled/deionized water rinse?	no
6. Are the sample containers for organic analyses cleaned using these sequential steps:	
a. Nonphosphate detergent/hot water wash? Not specified nonphosphate	no
b. Tap water rinse?	yes
c. Distilled/deionized water rinse?	yes
d. Acetone rinse?	no
e. Pesticide-grade hexane rinse?	no
7. Are trip blanks used for each sample container type to verify cleanliness?	yes
C. Special Handling Considerations	
Are organic samples handled without filtering?	yes
Is one equipment blank prepared each day of ground-water sampling?	N/A

SAMPLING PROTOCOL CHECKLIST

Parameter	Recommended Container		Preservative		Maximum Holding Time		Minimum Volume Required for Analysis	
Indicator Parameters								
pH	T,P,G[A]	____	field determ.		N/A		N/A	
Specific Conductance	T,P,G	____	field determ.		N/A		N/A	
TOC	G	____	4°C	____	28 days	____	4 x 15ml	____
	amber	____	HCl to pH<2	____				
	cap[B]	____						
	T-lined	____						
TOX	G, amber	____	4°C	____	7 days	____	4 x 15 ml	____
	container,	____	add 1 ml of					
	T-lined		1.1M Na_2SO_3	____				
	septa or							
	caps	____						
Ground Water Quality Parameters								
Chloride	T,P,G	____	4°C	____	28 days	____	50 ml	____
Phenols	G	____	4°C, add H_2SO_4 to pH<2	____	28 days	____	500 ml	____
Sulfate	T,P,G	____	Cool, 4°C	____	28 days	____	50 ml	____

[A]Container types: P = polyethylene, PP = polypropylene, G = glass, T = Fluorocarbon resins (PTFE, Teflon[R], FEP, PFA, etc.)

[B]Do not allow any head space in the container.

a:samptable/bas

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
Iron Manganese Sodium	T, P with poly or Teflon caps	Field acidified to pH<2 w/HNO_3	6 months	200 ml
EPA Interim Drinking Water Parameters				
Arsenic*	T, P with poly or Teflon caps	Field acidified to pH<2 w/HNO_3	6 months	1000 ml**
Barium*	"	" "	"	
Cadmium*	"	" "	"	
Chromium*	"	" "	"	
Lead*	"	" "	"	
Selenium*	"	" "	"	
Mercury*	"	" "	"	
Silver*	"	" "	"	
	(as above and also in dark bottle)			
Fluoride	T,P	Cool, 4°C	28 days	300 ml
Nitrate/ Nitrite	T,P,G	Cool, 4°C H_2SO_4	14 days	1000 ml

* Glass is acceptable for soil samples taken to evaluate these metals, and may be acceptable for solut samples if the glass has been acid leached prior to use. All cube-type containers must be rinsed firs

**1000 ml provides sufficient sample for running evaluations all of the indicated metals.

a:samptabl/bas

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
Endrin	T,G amber container	Cool, 4°C Adjust pH between 5 & 9 w/ dilute HCl or NaOH	7 days	2000 ml*
Lindane	"	"	"	
Methoxychlor	"	"	"	
Toxaphene	"	"	"	
2,4 D	"	"	"	
2,4,5 TP Silvex	"	"	"	
Radium	P,G	Field acidified to pH<2 w/ HNO_3	6 months	1 gallon**
Gross Alpha	"	"	"	
Gross Beta	"	"	"	
Coliform bacteria	PP,G sterilized	Cool, 4°C	6 hours	200 ml

* 2000 ml provides sufficient sample for evaluation of all pesticide/herbicide parameters.

**1 gallon (3785 ml) provides sufficient sample for evaluation of these radioactive parameters.

a:samptable/bas

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
Other Ground-Water parameters of interest				
Cyanide	P,G	Cool,4°C NaOH to pH>12 0.6 g ascorbic acid[D]	14 days[C]	500 ml
Oil and grease	G only	Cool,4°C H_2SO_4 to pH<2	28 days	100 ml
Semivolatile, acid,base,neutral organics	T,G amber container	Cool,4°C	extract within 7 days, analyze within 40 days	1 gallon
Concentrated organic soil/sludge	T,G	Cool,4°C	extract within 7 days, analyze within 40 days	60 ml
Volatiles	G,T-lined[B]	Cool,4°C	14 days	60-80 ml

[C]Maximum holding time is 24 hours when sulfide is present. Optionally, all samples may be tested with lead acetate paper before the pH adjustment in order to determine if sulfide is present. If present, sulfide can be removed by addition of cadmium nitrate powder until a negative spot test is obtained. T sample is filtered and NaOH is added to pH > 12.

[D]Use ascorbic acid only in the presence of oxidizing agents.

Reference: EPA Technical Enforcement Guidance Document, pages 111-112.

a:samptable/bas

	Y/N
V. Review of Chain-of-Cus[illegible] Procedures	
A. Sample Labels	
1. Are sample labels used?	yes
2. Do they provide the following information:	
a. Sample identification number?	UK
b. Name of collector?	
c. Date and time of collection?	
d. Place of collection?	
e. Parameter(s) requested and preservitives used?	
3. Do they remain legible even if wet?	✓
B. Sample Seals	
1. Are sample seals placed on those containers to ensure samples are not altered?	no
C. Field Logbook	
1. Is a field logbook maintained? No details. Some reference is made to a logbook	UK
2. Does it document the following:	
a. Purpose of sampling (e.g., detection or assesment)?	UK
b. Location of well(s)?	
c. Total depth of each well?	
d. Static water level depth and measurement technique?	
e. Presence of immiscible layers and detection method?	
f. Collection method for immiscible layers and sample identification numbers?	
g. Well evacuation procedures?	
h. Sample withdrawal procedure?	
i. Date and time of collection?	
j. Well sampling sequence?	
k. Types of sample containers and sample identification number(s)?	
l. Preservative(s) used?	
m. Parameters requested?	
n. Field analysis data and method(s)?	
o. Sample distribution and transporter?	
p. Field observations?	✓

	Y/N
—Unusual well recharge r[illegible]	UK
—Equipment malfunction(s)?	↓
—Possible sample contamination?	
—Sampling rate?	
D. Chain-of-Custody Record Chain-of-Custody is included with in sealed container.	
1. Is a chain-of-custody record included with each sample?	no
2. Does it document the following:	
a. Sample number?	UK
b. Signiture of collector?	↓
c. Date and time of collection?	
d. Sample type?	
e. Station location?	
f. Number of containers?	
g. Parameters requested?	
h. Signatures of persons involved in chain-of-custody?	
i. Inclusive dates of custody?	✓
E. Sample Analysis Request Sheet	
1. Does a sample analysis request sheet accompany each sample?	yes.
2. Does the request sheet document the following:	
a. Name of person receiving the sample?	UK
b. Date of sample receipt?	↓
c. Duplicates?	
d. Analysis to be performed?	✓
IV. Review of Quality Assurance/Quality Control	
A. Is the validity and reliability of the laboratory and field generated data ensured by a QA/QC program?	no
B. Does the QA/QC program include:	
1. Documentation of any deviation from approved procedures?	UK

	Y/N
2. Documentation of analytical results for:	
a. Blanks?	UK
b. Standards?	
c. Duplicates?	
d. Spiked samples?	
e. Detectable limits for each parameter being analyzed?	
C. Are approved statistical methods used?	
D. Are QC samples used to correct data?	
E. Are all data critically examined to ensure it has been properly calculated and reported?	✓
VII. Surficial Well Inspection and Field Observation Office Review - Not applicable	
A. Are the wells adequately maintained?	N/A
B. Are the monitoring wells protected and secure?	N/A
C. Do the wells have surveyed casing elevations?	N/A
D. Are the ground-water samples turbid?	N/A
E. Have all physical characteristics of the site been noted in the inspector's field notes (i.e., surface waters, topography, surface features)?	N/A
F. Has a site sketch been prepared by the field inspector with scale, north arrow, location(s) of buildings, location(s) of regulated units, locations of monitoring wells, and a rough depiction of the site drainage pattern?	N/A

A. Laboratory analysis procedures:

1. Are all samples analyzed using an EPA-approved method (SW-846)? (Y/N) yes

2. Are appropriate QA/QC measures used in laboratory analysis (e.g., blanks, spikes, standards)? (Y/N) UK

3. Are detection limits and percent recovery (if applicable) provided for each parameter? (Y/N) UK

4. If a new analytical method or laboratory is used, are split samples analyzed within specified holding times? (Y/N) UK

5. Are samples analyzed within specified holding times? (Y/N) ____

B. Laboratory logbook:

1. Is a laboratory logbook maintained? (Y/N) ____

2. Are experimental conditions (e.g., temperature, humidity, etc.) noted? (Y/N) ____

3. If a sample for volatile analysis is received with headspace, is this noted? (Y/N) ✓

4. Are the results for all QC samples identified? (Y/N) UK

5. Is the time, date, and name of person noted for each processing step? (Y/N) ✓

Conclusions ~~Comments:~~ 1) No total depth measurement of well 2) ~~[illegible]~~ No procedures for detection of immiscible layers. 3) Sampling equipment is inadequate 4) In-situ field measurements of pH, temperature and specific conductance must be made before ~~the sampling~~ the rest of the samples are collected 5) More detail is needed on calibration techniques, accuracy of instrumentation 6) More details on sample container and cap material 7) More detail should be in plan on specifics of sample labels, sample analysis request sheets, and field and laboratory QA/QC procedures.

HAZARDOUS WASTE PROGRAM
SAMPLING AND ANALYSIS PLAN

The purpose of this Sampling and Analsis Plan (S&A plan) is to ensure that groundwater samples are representative of the groundwater in the aquifer and to ensure that the samples are collected, analyzed, and reported in a consistent and appropriate manner. This S&A plan is based on the latest edition of RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD), September, 1986.

The Permittee must refer to TEGD methodologies for groundwater monitoring where appropriate and when questions of correct procedure arise.

I. Water Elevation and Total Depth Measurements:

Before purging, the depth to the bottom of the well and the depth to water must be measured and recorded. All measurements must be made from a visibly marked, surveyed point on the well casing rim. The surveyed point must have an elevation measured to the 0.01 foot with respect to sea level by a licensed surveyor. All water elevation measurements must be recorded to the nearest 0.01 foot. All total depth measurements must be recorded to the nearest 0.25 foot.

The surveyed elevations of the reference points for the monitoring wells must be listed in a table developed by the Permittee and recorded in the log book.

The materials of construction for the weighted tape or electric probe must be recorded in the field log book. The tape or probe must be accurate to the .01 foot.

A. Total Depth Measurements

To measure the total depth of the well a weighted tape constructed of inert materials must be lowered into the well casing until the bottom is felt. The slack in the tape must be taken out while the tape remains on the bottom of the well. The total depth must be recorded in the log book by observing the tape measurement at the surveyed point on the well casing rim.

Using an electric probe to determine total depth is not recommended because the probe usually does not weigh enough so that the bottom of the well can be easily determined. In addition, most probes are not designed for repeated immersion in contaminated water and repeated decontamination. The total depth measurement must be adjusted to reflect the length of the weight which is attached to the end of the tape.

B. Water Elevation Measurements

The depth to water must be measured as the distance from the surveyed point on the well casing rim to the wetted interface on the tape. The depth to water measurement must be subtracted from the elevation of the surveyed point in order to determine the water elevation measurement.

If a plastic or polytetrafluoroethylene (PTFE) measuring tape is used in conjunction with an electric probe, then this tape must be checked periodically, at least once a year, with a steel tape in order to determine whether the synthetic tape has stretched. If the synthetic tape has stretched more than 0.01 foot then the tape must be calibrated with the steel tape.

Measurements must be taken three times to accurately determine water level elevation if the hydraulic gradient is relatively flat. If the gradient is flat, an error in measurement could significantly change the calculated direction of groundwater flow. The field person must note which of the three measurements appears to be the correct measurement.

C. Decontamination of the Measuring Tape or Electric Probe

The level of decontamination for the tape depends on the situation. Less stringent decontamination procedures can be used if the wells have not evidenced contamination in the past, and more stringent decontamination should be used if the wells have evidenced contamination in the past. For more stringent decontamination, the tape must be cleaned before and between sampling points as follows.

The weighted tape must be washed with non-phosphate detergent followed by a tap water rinse. A hexane rinse can be included if the well has evidenced organic contamination.

Decontamination procedures for the tape are less

stringent than for sampling equipment because the tape does not come into contact with the sample and the wells will be purged after the tape is used.

II. Detection of Immiscible Layers

The Permittee must use the guidelines in the TEGD for determining the presence, measuring the thickness, and collecting a sample of any light or dense immiscible layers (TEGD, Section 4.2.2). These procedures must be accomplished prior to purging the well.

A. Light Immiscible Layers

The Permittee must test for light immiscible layers each time the well is sampled if the well has evidenced contamination by lighter than water constituents in the past. In addition, the Permittee must test for light phase immiscible layers if requested to do so. If the Permittee determines that any immiscible light phase is present, TEGD guidelines for measuring the thickness and sampling the phase must be adopted. A clear bailer constructed of inert material with a bottom filling, bottom emptying device can be used to determine an immiscible light phase. The Permittee may use an alternative method if the Director approves the method.

B. Dense Immiscible Layers

The Permittee must test for dense phase immiscibles if denser than water constituents have been previously detected in the well. In addition, the Permittee must test for dense phase immiscible layers if requested to do so. Dense phase immiscible layers can be detected by lowering an interface probe to the bottom of a monitoring well, if there is sufficient layer thickness to register on the probe. The Permittee may use an alternative method if the Director approves the method. If there is a sufficiently thick dense phase present, a teflon double check valve bailer must be used to obtain a sample.

III. Field Log Book

A field log book must be maintained with a record of the following information:

- Identification of well

- Well depth
- Static water level depth and measurement technique
- Presence of immiscible layers and detection method, if applicable
- Well yield -- high or low
- Purge volume and purge/sample pumping rate
- Time well purged
- Collection method for immiscible layers, if applicable
- Sample identification numbers
- Well evacuation procedure/equipment
- Sample withdrawal procedure/equipment
- Date and time of collection
- Types of sample containers used, parameter to be analyzed and sample identification information and number
- Preservative(s) used
- Parameters requested for analysis (e.g., volatile organics, total metals)
- Field analysis data and method(s)
- Sample distribution and transporter
- Field observations on sampling event.
- Name of collector
- Climatic conditions including air temperatures
- Internal temperatures of field and shipping (refrigerated) containers
- Well condition
  - security of well cap
  - presence of cracks in concrete apron
  - presence of standing water around well

- condition of protective posts
- condition of inner and outer well casing
- presence of cracks, holes and/or burrows in the ground near the well or RCRA unit

. Purpose of sampling, e.g. detection, compliance, corrective action

. Sequence in which the samples are collected (e.g., volatile organics, extractable organics, total metals, etc.)

. Any problems that were encountered

IV. Equipment Decontamination

The nondedicated sampling and purging equipment must be decontaminated as follows depending on whether the sample will be analyzed for inorganic or organic parameters:

A. For inorganic analysis

1. nonphosphate detergent wash
2. tap water rinse
3. dilute acid rinse HNO_3 or HCL
4. distilled or deionized water rinse
5. air dry before use

B. For organic analysis

1. nonphosphate detergent wash
2. tap water rinse
3. distilled/deionized water rinse
4. acetone or methanol rinse (optional)
5. pesticide grade hexane rinse
6. distilled/deionized water rinse (optional)
7. air dry before use

Decontamination of nondedicated sampling containers must be in accordance with the procedures described in the most recent edition of Test Methods for Evaluating Solid Waste (SW-846).

V. Sample Withdrawal and Collection

A. Purging Techniques and Field Measurements

Unofficial field measurements of pH, temperature, and specific conductance must be obtained before, during and after purging in order to verify that these parameters have stabilized. Stabilization indicates that the well has been sufficiently purged.

Stability is achieved when two consecutive measurements are plus or minus 0.1 pH units for pH, plus or minus 10 umhos for conductivity, and plus or minus one degree for temperature.

Field measurements should be used to determine purge efficiency unless it can be demonstrated that stabilization occurs after a specific volume of water has been purged. The specific purge volume required for stabilization may change as the well casing volume changes through time.

The official field measurements must be obtained after the well has been sufficiently purged. For low yielding wells (wells that are purged to dryness), the official field measurements for pH, temperature, and specific conductance must be obtained after the well has recovered enough to yield water for a sample. For higher yielding wells, the official field measurements for pH, temperature, and specific conductance must be determined after the unofficial field parameters have stabilized.

The official field measurements should be recorded to the nearest .01 pH unit and the pH meter should be accurate to the .01 pH unit. The conductivity measurements should be recorded to the nearest 10 umhos and the meter should be accurate to the 10 umhos.

Contaminated purge water should be disposed of as hazardous waste or can be treated on site. Purge water should be containerized until the analytical results indicate whether the water is contaminated. Treatment on site should eliminate the hazardous constituents and not violate any applicable or relevant regulations. Disposal of contaminated purge water on the ground could result in soil contamination that requires clean up.

B. Sampling Equipment

A PTFE bailer or any fluorocarbon or stainless steel bailer that is constructed of inert material with a bottom filling-bottom emptying device or a positive gas displacement PTFE bladder pump must be used to withdraw samples from monitor wells. The bailer cord must be

specified in the field log book and composed of inert material or be discarded between sampling points. Precautions in using sampling equipment must be taken to insure that parts that come in contact with well fluid are constructed of inert material and can be decontaminated or disposed of between uses.

C. Sample Collection Techniques

If a pump is used to collect samples, the flow rate must be 100 ml/minute or less for collecting the organic samples, metal samples and any other samples which could be chemically unstable due to aeration and turbulence. The pump must be operated to prevent surging or pulsing, if possible.

If a bailer is used, it must be handled in such a manner to minimize agitation and aeration of the groundwater, (e.g., the bailer must not be dropped down the well casing or allowed to splash the water surface in the casing.) The contents of the bailer must be transferred to the appropriate containers using procedures to minimize agitation and aeration and in order of sensitivity to volatization as listed below:

- Volatile Organics (VOA)
- Total Organic Halogen (TOX)
- Total Organic Carbon (TOC)
- Extractable Organics
- Total Metals
- Phenols
- Cyanide
- Sulfate and Chloride
- Turbidity
- Nitrate and Ammonia
- Radionuclides

VI. <u>Sample Containers and Preservation</u>

The appropriate sample volumes, preservatives, container types, and holding times must be as described in Table 1.

Sample labels must include the Permittee facility name, date, preservatives used, sample identification numbers and parameters to be analyzed for (e.g. TOX, TOC, VOC, Acid Extractable, Base/Neutral Extractable, General Chemistry, etc.).

Sample labels must remain legible even if wet.

Sample labels must remain firmly attached even when wet.

Sample seals must be placed on the sample shipping containers in such a manner that ensures that the samples are not altered.

Water samples for organic and inorganic (including metal) analyses must not be filtered.

Samples for metal analyses must be analyzed for total metals.

The bottles for VOA, TOX, and TOC analysis will be filled to eliminate headspace (no air bubbles).

Sample containers should be packaged in a manner that prevents breakage (e.g., there should not be direct contact between glass containers).

Sample containers should be packaged in a manner that prevents the wet labels from rubbing together.

Volatile septum vials should be packaged and transported upside down with the teflon septum on bottom to prevent leakage of gas through the septum.

Volatile septum vials should be packaged in a manner that prevents cross-contamination through the teflon septum. For example, the vials should be placed in plastic baggies or whirlpacks.

VII. Field QA/QC Program

Field QA/QC samples must be collected and reported to ensure that the groundwater samples are representative of the groundwater quality and to ensure that cross-contamination has not occurred. Duplicate samples are required as an indication of variability in water quality or the precision of the laboratory analyses. Sample collection techniques, sample containers and preservation must be as described in Section V and VI.

A. Trip Blanks

1. Preparation

The Permittee's laboratory will prepare at least one trip blank for each sampling event. The trip blank will be prepared by filling two 40 ml vials with deionized, distilled water. The bottles must be filled to eliminate headspace. The deionized, distilled water must be free of contamination.

2. Handling

The trip blank must be transported from the laboratory to the sampling location and returned to the laboratory in a manner identical to the handling procedure used for the sampling.

3. Analysis

The trip blanks must be analyzed for volatile organic constituents. Additional trip blanks must be prepared and analyzed for other sample parameters (e.g., extractable organics, total metals, etc.) if the sample containers are suspected of causing cross-contamination.

4. Contamination

Trip blank contamination can be attributed to improperly cleaned containers, contaminated deionized, distilled water, or cross-contamination during the trip or at the laboratory. If the trip blanks evidence contamination, the Permittee must take steps to determine the cause and ensure that it will not happen again.

Trip blank analyses should not be used to correct the groundwater sample data.

B. Equipment Blanks

1. Preparation

During the course of a sampling event, all nondedicated sampling devices must be checked to determine if the device has been effectively cleaned between sampling points.

Distilled, deionized water must be poured or pumped through the sampling device, and collected

directly by the water sample containers. The distilled, deionized water must be free of contamination. If possible this water should be provided by the Permittee's analytical laboratory.

At least one equipment blank must be collected per day of sampling or one equipment blank per 10 wells.

2. Handling and Analysis

The equipment blanks must be handled in a manner identical to the handling procedures used for the water samples.

The equipment blanks must be returned to the laboratory for volatile, extractable (semi-volatile) constituents, and total metal analyses.

3. Contamination

Dedicated bailers must be used if previous equipment blank analysis indicates any organic or inorganic contamination above background or the reporting limit, excluding those constituents caused by laboratory procedure contamination or field equipment decontamination.

If contamination is detected in the equipment blanks, the Permittee must either adequately demonstrate that the contamination was caused by laboratory procedure or field equipment decontamination within 30 days of receipt of the laboratory report or use dedicated sampling equipment for future sampling. If the above mentioned procedures are proven to cause the contamination, then the Permittee will modify the laboratory procedure and/or the equipment decontamination in order to prevent future contamination by the contaminant in question.

Equipment blank analyses must not be used to correct the groundwater sample data.

C. Duplicate Samples

1. Preparation

For each sampling event, at least one set of duplicate samples must be collected from one well per each day of sampling or one set of duplicate

samples per 10 wells. The volatile duplicate sample must be collected immediately after the "primary" volatile sample, the "primary" extractable organic sample must be collected followed by the duplicate extractable organic sample. This pattern must continue until a set of duplicate samples have been collected for every "primary" sample at the well. The order of sample collection must be as described in Section V of this Sampling and Analysis Plan.

Duplicate sample analyses must not be used to correct the groundwater sample data.

2. Handling and Analyses

The duplicate samples must be handled in a manner identical to the handling procedures used for the "primary" groundwater samples.

The duplicate samples are analyzed for the same parameters as the "primary" groundwater samples.

D. Calibration and Decontamination of Field Equipment

The following discussion refers to the pH and conductivity meters. Before and after the daily sampling event, a calibration check against a known standard must be performed and noted in the field logbook. The equipment manufacturer's procedures for calibration must be used and any deviations, problems, and repairs will be noted in the field log book. The batteries must be tested prior to using the equipment. Spare batteries should be carried in the field and used whenever the instrument provides unstable readings. The equipment manufacturer's procedures must be maintained in the facility operating record.

The instrument's cell or sampling cup must be repeatedly flushed with distilled water before and after use and in between actual sampling events. Flushing must be of a duration to prevent cross contamination.

For the sampling event, the cup or cell must be flushed three times with the liquid to be sampled before measurements are made.

The manufacture approved method of cleaning and storage must be used and any deviations, or problems must be noted in the field logbook.

Additionally, if the groundwater samples are obviously contaminated with oil or any other substance which could cause the pH/EC probe response to deteriorate, then the probe must be cleaned per manufacturer's procedure and recalibrated before the measurement.

E. Chain of Custody and Sample Request Forms

The chain of custody must ensure that the samples were never left unattended unless they were in a secure, locked location and only authorized people had access to the samples. The sample request form provides the necessary information to the laboratory (e.g., identification of sample, analyses requested, preservatives used or requested, etc.). The chain of custody record and sample request form information may be combined on the same document and must include the following:

1. Facility name

2. Sample identification number

3. Date and time of collection if different from sample identification number

4. Identification number or name of well(s)

5. Number of containers and parameters required (e.g., VOA, total metals)

6. Preservatives used or required

7. Internal temperatures or presence of ice in shipping container upon opening at the laboratory

8. Signature, date, and time of receipt of collector and all person(s) in the chain of possession

9. Laboratory personnel statement of the condition of seals at time of receipt at laboratory

VIII. Laboratory Quality Assurance and Quality Control Program

The Permittee must ensure the laboratory performing the sample analysis adheres to QA/QC procedures and methods described in the TEGD, or the most recent edition of SW-846 or other EPA approved laboratory QA/QC procedures.

A. The laboratory QA/QC program must insure the validity and reliability of laboratory data and include the following:

1. Use of EPA-acceptable sample preparation and analytical methods as specified in the permit.

2. Calibration of laboratory instruments to within acceptable limits according to EPA or manufacture's specifications before, after, and during use, as appropriate. Reference standards must be used when necessary.

3. Periodic inspection, maintenance, and servicing (as necessary) of all laboratory instruments and equipment.

4. Periodic training, testing and evaluation of laboratory personnel to insure accurate performance.

5. The use of reference standards and QC samples (e.g., checks, spikes, laboratory blanks, duplicate, splits) as necessary to determine the accuracy and precision of procedures, instruments, and operators, as well as the identification of potential interference by the sample matrix.

6. QA/QC samples must not to be used to correct data.

7. The use of adequate statistical procedures (e.g. QC charts) to monitor the precision and accuracy of the data and to establish acceptable confidence limits.

8. The use of the appropriate percentage of the reference standards, spiked standards, blanks and split samples based on EPA standards.

9. If an alternative method for analysis is used, split samples must be run with another laboratory for comparison purposes and must be included with the laboratory data.

10. Continuous review of results to identify and correct problems within the measurement system (e.g. instrumentation problems, inadequate operator training, inaccurate

measurement methodologies.)

11. Documenting the performance of systems and operators.

12. Documenting any deviation from SW-846 or other EPA approved procedure (latest editions).

13. Use of acceptable sample identification and, as necessary, formal chain-of-custody procedures in the laboratory.

14. Maintenance and storage of complete records, charts, and logs of all pertinent laboratory calibration, analytical, and QC activities and data.

15. Insure all data outputs are presented in their prescribed format. Well numbers, detection limits, percent recovery, surrogate standards, confidence limits and the actual holding time information must be provided for each parameter and included with the laboratory analysis data for each sampling event.

16. A laboratory logbook must include the following:

    a. Experimental conditions (e.g. temperature, humidity, etc.)

    b. Observation of headspace in any sample received for volatile analysis

    c. Results for all QA/QC samples

    d. Time, data, and name of person for each processing step

    e. Sample preparation technique (e.g. extraction)

    f. Instrumental methods

    g. The actual holding time information

    h. Laboratory sample number (if different from field number)

    i. Analyses to be performed

IX. Groundwater Quality Data

A. Reporting of Low and Zero Concentration Values

The Permittee must insure that MDL's (method detection limits) be set as low as possible consistent with SW-846 and Appendix B of 40 CFR 136. If detection limits are greater than the New Mexico Water Quality Control Commission Standards as listed in Section 3-103A, WQCC 82-1 Amendment No. 4 or EPA Drinking Water Standards and the constituent is not detected then the well must be resampled within fourteen days and analyzed with detection limits as outlined above. Detection limits that are high or vary from past detection limits must be reduced in future work by laboratory procedures that remove or control interfering constituents that potentially cause detection limits to be elevated.

Regarding GC/MS analyses, the numerical concentration values of any hazardous constituents found at levels below the practical quantitation limit and above the method detection limit must be reported if these constituents have been detected in samples from the well in question by previous GC/MS or GC analyses.

B. Reporting Raw Data

For each sample, the raw data sheets must indicate monitor well number, date sampled, date extracted and date analyzed. In addition the detection limits, percent recovery, surrogate used, and confidence limits must be reported for each sample.

C. Missing Data Values

The Permittee must statistically evaluate all missing data values in accordance with the TEGD, Section 4.7.2.

D. Outliers

"Outlier" values must be handled and documented in accordance with the TEGD, Section 4.7.3.

E. Units of Measure

The Permittee must report each parameter analytical value with consistent, unambiguous units of measure. The units must be consistent from one sampling event to the next. Reporting in a consistent number of significant digits, at least three, is required.

Rounding techniques must not be used to alter the apparent precision of a measurement. If a constituent concentration cannot be measured to three significant digits then the reasons must be documented and no more than a 10 percent error will be allowed in a one unit change in the last significant digit of a data value.

F. Missing Constituent(s) and/or Parameter(s)

Should a laboratory analytical report be received that does not include the analysis of a required constituent(s) and/or parameter(s), then the following actions must occur:

1. The Permittee must immediately contact the laboratory to determine if there are archive samples that can be retrieved and analyzed for the constituent(s) and/or parameter(s) of concern within specified holding times and if not;

2. The Permittee must resample for the required constituent(s) and/or parameter(s) of concern within fourteen (14) days of contacting the laboratory.

3. All such actions must be recorded in the facility operating record and noted in the annual report.

G. Exceeding Maximum SW-846 Holding Times

Samples must not exceed their maximum holding times as listed in Table 1. Should a laboratory analytical report be received that indicates that ground-water samples have exceeded their maximum holding times before the appropriate analysis has been performed, then the following actions should occur:

1. The Permittee must immediately verbally notify the EID that such has occurred and;

2. The Permittee must within fourteen (14) days resample for any constituent and/or parameter that has exceeded its maximum holding times.

H. Unsampled Ground-Water Monitoring Wells

If a designated groundwater monitoring well cannot be sampled due to reasons beyond the Permittee's control, then the following actions should occur:

1. The Permittee must immediately contact the

EID by telephone and in writing, stating the reasons why said well could not be sampled.

2. The Permittee must sample said well within fourteen (14) days unless conditions preventing the sampling remain beyond the control of the Permittee and the Director accepts the Permittee's reasons.

X. Operation and Maintenance Program

A. Maintenance of Equipment

The Permittee must maintain an inventory of sampling equipment and devices used in the sampling program. A month before each sampling event, the Permittee must check all sampling equipment (pumps, bailers, field equipment, etc.) to ensure that the equipment is in good working order and that all necessary equipment is available for the upcoming sampling event. This check and any problems must be noted in a separate operation and maintenance (O&M) log book.

B. Maintenance of Monitor Wells

1. A separate record must be kept in the O&M log book that tracks the integrity of the monitor well.

2. Once every five years (or more often if warranted) the Permittee must have the top of the casing of the monitor well resurveyed by a licensed surveyor to elevation above sea level. This information must be reported to the Director in the annual report of that year.

3. The Permittee must maintain the wells in good working order. Visual or geochemical evidence of physical degradation of casing material, concrete pad, significant changes in the well depth, recovery rate, and turbidity measurements, and damage to the well casing etc., must be investigated, recorded in the O&M log book and repaired. Investigation may require the use of a borehole camera or caliper logs.

   Damaged wells must be replaced if they cannot be repaired and if the integrity of the samples is at risk.

4. If a monitor well yields a ground water sample

that measures a turbidity greater than 5 NTUs or measures significantly greater turbidity than in the past, or the total depth has decreased with time, then the well must be redeveloped within 30 days from receipt of the laboratory analyses or the total depth measurement. If redevelopment does not lower the turbidity to acceptable levels, the Permittee must determine the reason for the increased turbidity. This can be accomplished by using a borehole camera or caliper log. If the turbidity is caused by damage to the well, then the well must be replaced before the next sampling event. If a well evidences high pH that is not caused by a contaminant plume, then the well must be repaired or replaced.

A detailed plan to repair or replace any well must be developed and submitted to the Director within 30 days of the laboratory analyses. If the plan is acceptable to the Director then the Permittee must implement it within 30 days.

5. The Director must be provided with "as built" drawings of all recovery or monitor wells. If the specifications do not coincide with the "as built" drawings then these wells must not be used.

XI. Revision of Sampling and Analysis Plan

Sampling and analysis technology is dynamic and is currently being updated as new studies demonstrate better ways to obtain, analyze, and otherwise ensure a more representative sample. Therefore, this S&A plan will be revised and updated according to the Hazardous Waste Management Regulations (HWMR-5), Part 901, Section 270.42 whenever directed by the Director. The Permittee may initiate a minor permit modification in order to revise the S&A plan if he can demonstrate to the Director's satisfaction that the new procedures will ensure a more representative sample.