

**ADDENDUM TO
MAY 1991 WORKPLAN FOR GROUNDWATER SAMPLING
AIDEX CORPORATION SITE
MILLS COUNTY, IOWA
for
June 23, 1999 Sampling**

INTRODUCTION

This addendum contains only information that varies from the May 1991 work plan.

NUMBER OF WELLS SAMPLED

A total of 13 wells will be sampled. Due to relocation of the county road through the site, monitoring wells IGS-4A, IGS-4B, and MW-5 have been abandoned. Of these three wells only MW-5 was monitored routinely. As was done the last four years, monitoring well IGS-1A will be substituted for MW-5. IGS-1A is located just a short distance west of MW-5 and has a similar depth to MW-5. Monitoring wells ADX-17 and ADX-19 will not be sampled this event. They are sampled every 3 years, last being sampled in 1998.

MONITORING WELL SAMPLE COLLECTION

Sampling procedures will remain the same as last year for most wells. For all wells except ADX-14, ADX-15, and ADX-21 dedicated Waterra™ pumps will be likely be utilized. However, Brainard-Kilman™ (B-K) pumps may be used instead of the existing Waterra™ pumps in monitoring wells ADX-23 and ADX-27. These are deeper wells that recharge slowly making the Waterra™ pumps difficult to use. ADX-14 is an active well used for water supply by the facility. The sample from ADX-14 will be collected from the water tap closest to the well after flushing for several minutes, since the facility is temporarily not occupied. ADX-15 is a larger diameter well which requires a large amount of purging prior to sample collection in accordance with standard sampling protocol. A low-flow purging technique will be used on ADX-15 with B-K pumps and 80 feet of tube (to the screened interval of the well). Sample collection from ADX-15 will initially be after pumping a small volume (<25 gal.) after pH, temperature and conductivity stabilization (measured at 5 gal. increments)

The Waterra™ pumps consist of a foot valve attached to the bottom of 5/8 inch (standard) or 1 inch (high-capacity) O.D. polyethylene tubing. Manual up-and-down action of the tubing will pump water from a well. All samples will be collected directly from the Waterra™ pumps after purging of the well is completed. The Waterra™ are left in each monitoring well and, therefore, no decontamination of the Waterra™ pumps is necessary.

QUALITY ASSURANCE PROCEDURES

Decontamination

No decontamination of sample pumps will be required on site, unless B-K pumps or bailers are used more than once which is not anticipated.

Field Duplicates and Blanks

One duplicate will be collected for common herbicides from MW-2. Previously a duplicate was also taken for PCE from ADX-21. However, PCE has not been detected in this well for several years. Instead a pint sample will be collected for headspace analysis using the DNR's gas chromatograph. A field blank will be collected by pouring laboratory deionized water into a sample container near MW-2, historically the well with highest contaminant levels. If equipment is decontaminated and used again, an equipment blank will also be collected by pouring deionized water into the sampling equipment and then into the sample container prior to use of the equipment for additional sampling. The field blank and any equipment blank will be analyzed for common herbicides only. A shipping blank for VOCs will no longer be utilized due to the lack of VOC detections in recent samples.

SUMMARY OF AIDEX MONITORING WELL INFORMATION

Well No.	Well Depth (ft.)	Well Dia. (in.)	Pump Type	Tube Length (ft.)	Sample for
MW-1*	32.9	2.75	Waterra-std	32	Herb.
MW-2*	37.4	2.75	Waterra-std	35	Herb.
MW-3	35.8	2.75	Waterra-hc	35	Herb.
MW-4	30.1	2.75	Waterra-hc	30	Herb.
IGS-1A	27.8	2.0	Waterra-std	30	Herb.
ADX-14	98.8	6.0	Active well	---	Herb.
ADX-15	94.6	6.0	B-K	10	Herb
ADX-17	95.0	2.0	B-K	50+	Herb
No Sample					
ADX-19	97.2	2.0	B-K	50-	Herb.
No Sample					
ADX-20	57.0	2.0	Waterra-hc	30	Herb.
ADX-21	91.5	2.0	B-K	50	Herb. & PCE
ADX-22	57.0	2.0	Waterra-std	55	Herb.
ADX-23*	89.3	2.0	Waterra-hc	25	Herb.
ADX-26	88.6	2.0	Waterra-hc	30	Herb.
ADX-27*	51.0	2.0	Waterra-hc	30	Herb.

* Brainard-Kilman™ (B-K) pumps may be used in lieu of Waterra™ pumps in these wells.

Volume per foot of water in well:

2.0 Inch Dia. = 0.163 gal./ft.

3.0 Inch Dia. = 0.37 gal./ft.

6.0 Inch Dia. = 1.469 gal./ft.

SUMMARY OF AIDEX MONITORING WELL INFORMATION

Well No.	Well Depth	Depth to H ₂ O	Feet of H ₂ O	X	1 Purge Vol
MW-1	32.9			0.37	
MW-2	37.4			0.37	
MW-3	35.8			0.37	
MW-4	30.1			0.37	
IGS-1A	27.8			0.163	
ADX-14	98.8			1.469	
ADX-15	94.6			1.469	
ADX-17	95.0			0.163	
ADX-19	97.2			0.163	
ADX-20	57.0			0.163	
ADX-21	91.5			0.163	
ADX-22	57.0			0.163	
ADX-23	89.3			0.163	
ADX-26	88.6			0.163	
ADX-27	51.0			0.163	

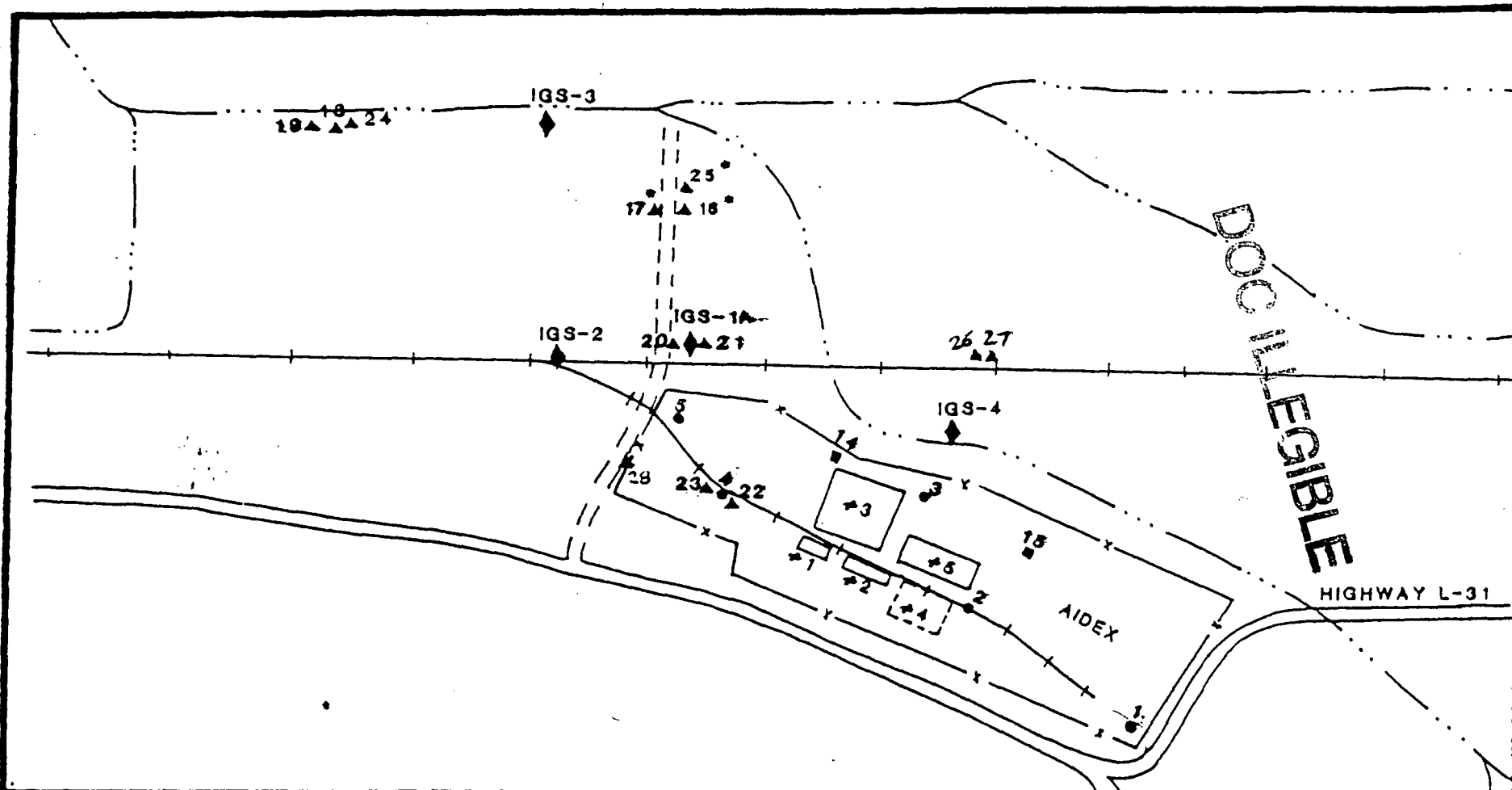
AIDEX EQUIPMENT & SUPPLIES

- ___ Keys
- ___ Field Book
- ___ Sample Sheets
- ___ 16 Quart Sample Bottles
- ___ 3 - 40 ml VOC Sample Bottles
- ___ 2 Coolers
- ___ 6 Gallons of Deionized Water
- ___ 4 Brainard-Kilman pumps
- ___ Water Level Indicator
- ___ pH/Conductivity Meter
- ___ Thermometer
- ___ Boots
- ___ Gloves
- ___ 3 Buckets
- ___ Calculator

CONTACTS:

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LEGEND

- AIDEX MONITORING WELL (ADX-1) INSTALLED BY E&E
- ▲ AIDEX MONITORING WELL INSTALLED BY WCC
- ◆ IOWA GEOLOGICAL SURVEY MONITORING WELL(IGS-1)
- EXISTING AIDEX WATER WELL



FIGURE 2
AIDEX SITE
COUNCIL BLUFFS, IOWA
WELL LOCATIONS

200 FEET

• NOTE - THESE ARE CORRECTED WELL LOCATIONS ACCORDING TO ONSITE OBSERVATIONS

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