



BLACK & VEATCH

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Sparton Technology
Coors Road FacilityB&V Project 26602.0100
B&V File B
July 10, 1996Mr. R. Jan Appel
Vice President and General Counsel
Sparton Corporation
2400 East Ganson Street
Jackson, Michigan 49202Re: Updated Corrective Action
Recommendations

Dear Mr. Appel:

As part of the continuing, phased investigation at the Coors Road facility, we have obtained additional preliminary data on the extent of soil gas and groundwater VOC concentration. In response to your request, the purpose of this letter is to briefly outline three corrective actions set forth as follows:

1. Install and operate a vapor extraction system (VES) in the immediate source area to reduce VOC concentration in the unsaturated zone.
2. Install and operate a groundwater extraction well to contain the leading edge of the defined plume.
3. Expand the existing onsite Interim Measure (IM) pump and treat system to include LLFZ well MW-32.

These recommended actions are described more fully in following sections of this letter. All of these actions are consistent with information given in the Corrective Measure Study (CMS) Report.

Vapor Extraction Systems (VES)

Preliminary analytical results from the recently installed vapor probe in the center of the source area (adjacent to the solvent sump) and the April 1996 deep soil gas investigation confirmed the findings of the RFI and CMS Reports. Specifically, elevated soil gas concentrations (above 10 ppmv) of TCE and 1,1,1-TCA are found in the immediate source area and negligible soil gas VOC concentrations are found

Sparton Technology
Mr. R. Jan Appel

B&V Project 26602.0100
July 10, 1996

offsite. The elevated soil gas VOC concentrations are believed to be the result of adsorption to fine-grained silts and clays in the upper 40 feet or so of the unsaturated zone.

The elevated soil gas VOC concentrations indicate that VES should be considered in the source area. As many as seven soil gas extraction wells (as shown in the attached figure) may be necessary to cover the source area with elevated soil-gas VOC concentration. The areal coverage provided by these wells indicates that further vapor probe installation in the interior source area is not warranted. Any additional soil gas monitoring, if necessary, could be provided by the individual extraction wells.

Detailed information of VES is given in the CMS Report. Extraction rates are expected to be in the range of 5 to 10 scfm per well. It is anticipated that the VES would be operated on a pulsed basis for up to three years to obtain maximum practical reduction in VOC concentration in the unsaturated zone.

Plume Containment

Based on preliminary sampling and analyses at the three new groundwater monitoring well locations that have been drilled so far -- specifically, UFZ wells MW-66 and MW-68 and TFZ well MW-67 (Sparton correspondence 5/14/96) -- the 1996 TCE plume contours given in the CMS Report seem reasonable. Based on the plume configuration, a single groundwater extraction well located along Buckeye (as shown in the attached figure) should be capable of containing the defined plume. For security, it would be advantageous to install the well on a vacant residential lot.

The partially penetrating well should be screened at least into the upper thirty to thirty-five of the saturated zone. (Upper and Lower Flow Zones). Screen depth should be adjusted, based on pilot hole logging, to assume placement in a transmissive zone. Very deep penetrations are undesirable due to the potential for contaminant migration to the Lower Lower Flow Zone (LLFZ).

Using aquifer properties given in the RFI Report and confirmed by the USGS, a pumping rate of 50 to 100 gpm would give a capture zone width (at the well) of approximately 1,500 to 2,000 feet which would adequately cover the width of the plume. Alternatively, capture zone width could be based on the 600-foot-plus radius of influence demonstrated in pumping tests reported in the RFI. The pumping rate would give a drawdown in the range of six to ten feet. The pumping rate should be

Page 3

Sparton Technology
Mr. R. Jan Appel

B&V Project 26602.0100
July 10, 1996

adjusted to provide sufficient drawdown for containment but not so much drawdown to pull shallow contamination deeper into the aquifer.

Extracted water would be treated at the well head on the residential lot to avoid any problem with transmission of untreated water along public right-of-way. It is anticipated that the only required treatment would be air stripping to remove VOC. Air polishing of air effluent should not be required since the total VOC emissions will be less than 5 pounds per day.

Treated water could be routed from the well head treatment site to the Rio Grande in a pipeline buried in the public right-of-way. An NPDES permit would be necessary for such a discharge, as discussed in the CMS Report.

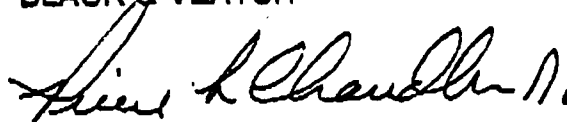
Enhanced IM Recovery

We continue to recommend that LLFZ groundwater monitoring well MW-32 be added to the existing onsite IM pump and treat system as detailed in the CMS Report § VIII.B.

We appreciate the opportunity to provide this information. If you have any questions, please call.

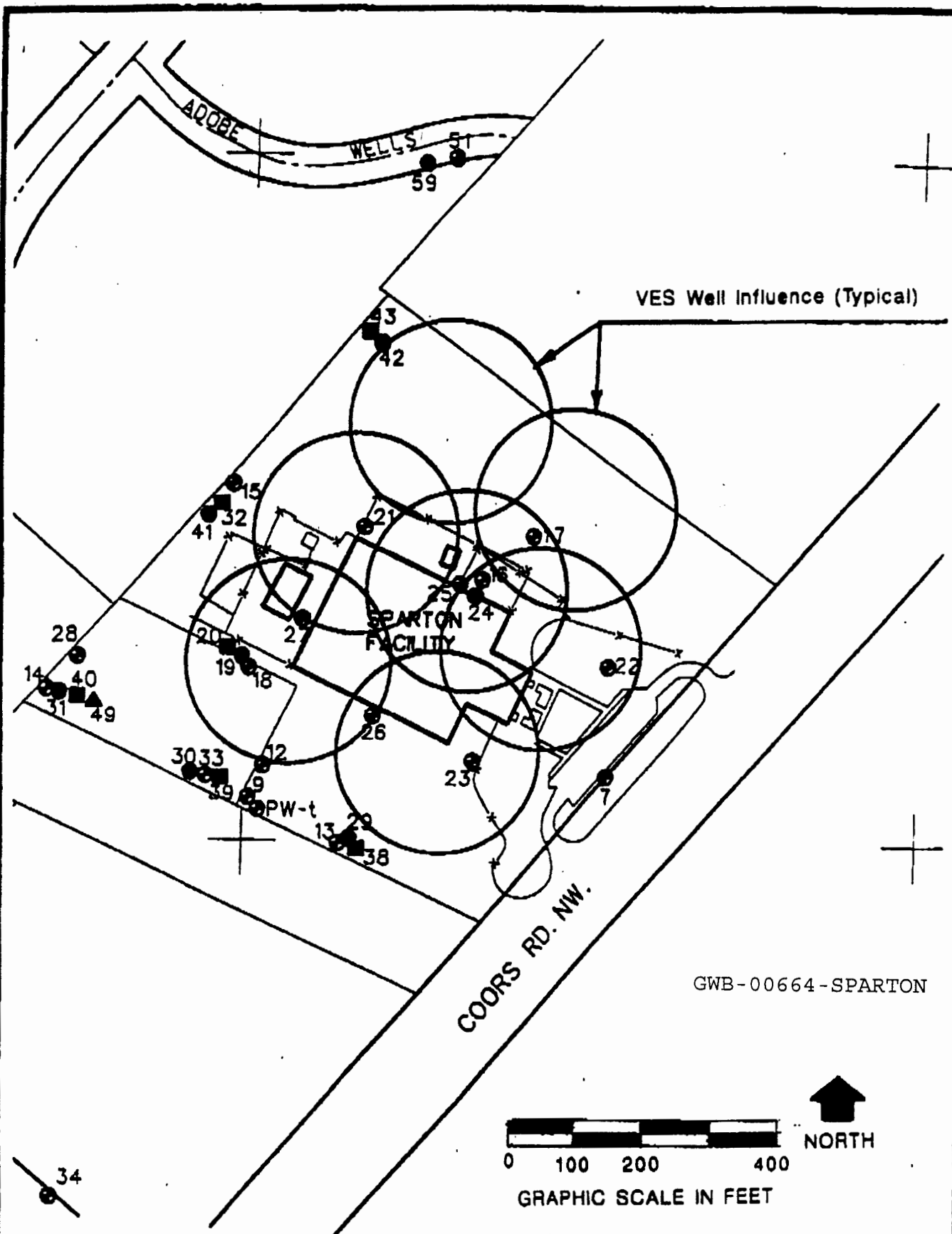
Sincerely,

BLACK & VEATCH



Pierce L. Chandler, Jr.
Project Manager


bk
enclosures



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BASE MAP FROM RFI - FIGURE 11

VES - 7 WELL SYSTEM (SOURCE AREA)	
SPARTON TECHNOLOGY, INC.	
BY	 Black & Veatch Engineers-Architects Dallas, Texas
DATE	

PROJECT

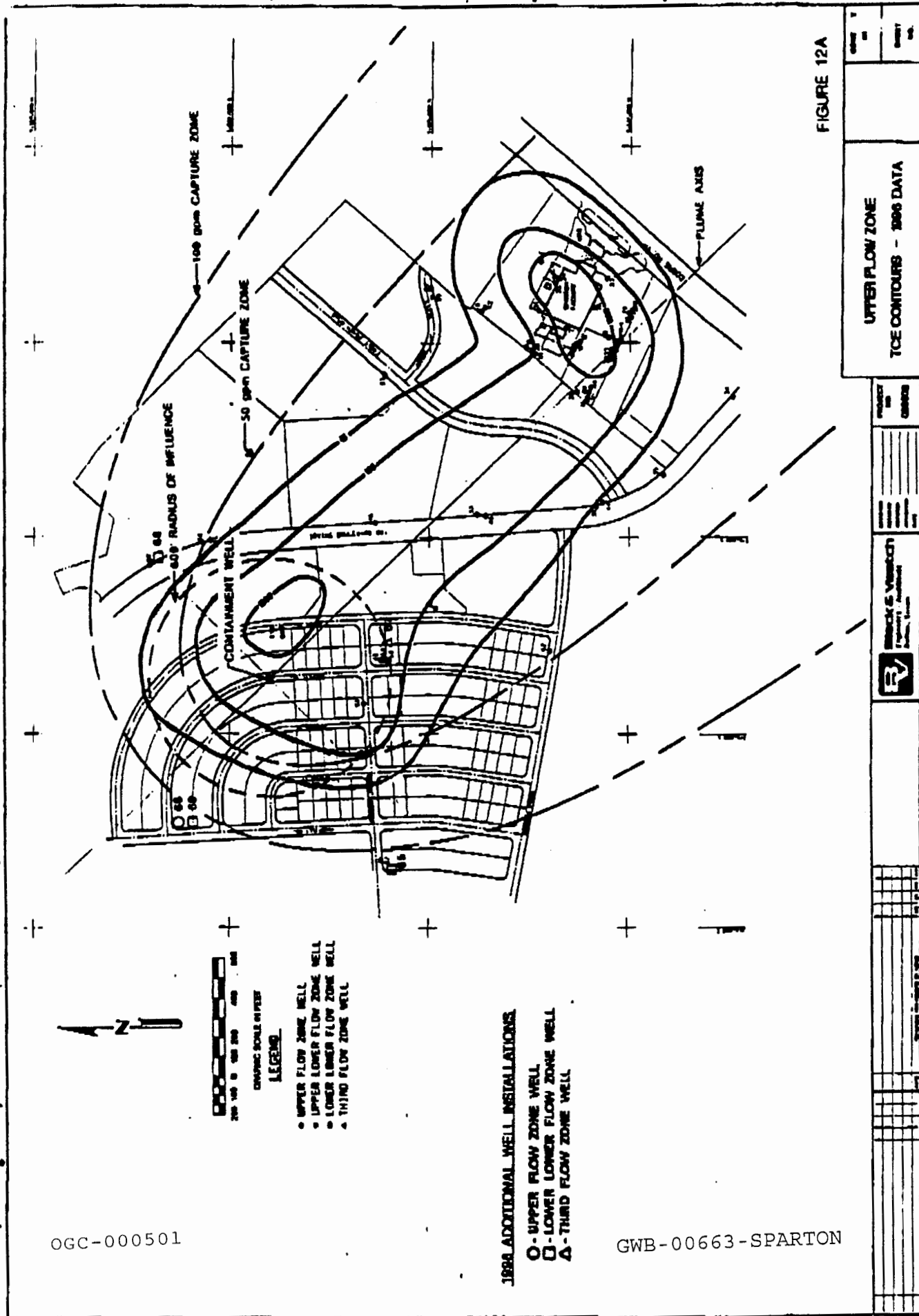


FIGURE 12A

UPPER FLOW ZONE
TCE CONTOURS - 1996 DATA

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DRAWN BY [Signature]
CHECKED BY [Signature]
SCALE 1" = 100'

BLACK & VEATCH
Engineering, Architecture
and Construction

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