January 22, 2007

Mr. Benjamin Rung, Project Manager
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-7017

Subject: **Vapor Intrusion Evaluation Work Plan**
Becker Electronics Manufacturing Site - Site No. 4-20-007
Immediate Investigation Work Assignment # D004434-02
MACTEC Engineering and Consulting, P.C. Project No. 3612072072

Dear Mr. Rung,

MACTEC Engineering and Consulting, P.C., (MACTEC), under contract to the New York State Department of Environmental Conservation (NYSDEC) is pleased to present this letter work plan for the Immediate Investigation Work Assignment (IIWA) # D004434-02 for soil gas and groundwater sampling at the Becker Electronics Manufacturing Site # 4-20-007 (the Becker Site).

The Becker Site is located on approximately 8 acres along the south side of Route 145 in East Durham, Greene County, New York (Figure 1). Since 1980, solvent contamination, primarily 1,1,1-trichloroethane, has been detected in groundwater surrounding the Becker Site. In 1982, Becker Electronics closed the facility and filed for bankruptcy. The NYSDEC completed a Remedial Investigation/Feasibility Study (RI/FS) for this Site in 1996 and a Record of Decision was subsequently signed. As part of a Remedial Action plan, impacted off-site private drinking water wells were fitted with carbon filtration systems. The final remedy for the Becker Site was completed in 1999. Remedial activities included debris pile capping, building demolition, soil removal, and groundwater pumping with on-site treatment. Groundwater pump and treat is on-going.

Subsequently the NYSDEC and the New York State Department of Health (NYSDOH) identified the need for additional investigations to determine the potential for soil vapor intrusion into structures on or near the Site. This letter work plan describes the additional investigations planned for the Site. Supporting figures and tables are included. Also enclosed are the Quality Assurance Project Plan, the Health and Safety Plan, and supporting cost tables.

Proposed Field Activities

Based on previous investigations and current conditions, the NYSDEC has directed MACTEC to conduct soil vapor and groundwater sampling at up to eight locations on or downgradient of the Becker Site. At each location soil vapor will be sampled from one or two depths within the north vadose zone and a groundwater grab sample will be obtained from the water table within the overburden soil.

The field program will be conducted following the procedures outlined in the Quality Assurance Program Plan (ABB, 1995), and the Program Health and Safety Plan (MACTEC, 2005). In addition, a site specific Quality Assurance Project Plan (QAPjP) is included as Attachment A and a Site Specific HASP is included as Attachment B. MACTEC estimates that the field activities can be completed within a four day period.

Soil Vapor Sampling. .

A soil vapor survey, consisting of up to eight temporary locations, will be conducted to determine shallow soil vapor concentrations at the planned locations shown on Figure 2. Sample details are provided on Table 1. Soil vapor samples will be collected using direct-push drilling methods and Geoprobe® soil gas implants. MACTEC has assumed that this work could be completed in three to four field days.

At each location, a small-diameter (1 to 1 ½ inch diameter) borehole will be created using direct-push drilling methods to evacuate a soil profile with a macrocore sampler. Each boring will be advanced up to 12 feet below ground surface (bgs) or to refusal if shallower. The retrieved soil profiles will be examined to evaluate the depth to water-saturated conditions and the open borehole will be sounded with a water level meter to determine if groundwater is infiltrating. The depth of soil gas sample implants will be determined in the field based on observed soil and groundwater conditions. The objective will be to obtain samples from depths of eight feet bgs and from just above the water table, if the water table is 10 feet or deeper. If groundwater is encountered shallower than 10 feet, one soil gas implant will be installed approximately one foot above the water table.

After evaluation of the most applicable soil gas sample depth, a Geoprobe soil gas implant will be installed. The implant will have a minimum 6-inch length with a double woven stainless steel wire screen. Glass beads will be used to create a sampling zone around the screen. The beads will extend one foot above the top of the implant screen. Bentonite slurry will be placed above the glass beads for distance of 3 feet to prevent outdoor air infiltration and the remainder of any open borehole will be backfilled with bentonite slurry or clean backfill. Inert tubing (e.g. polyethylene or Teflon) will extend from the implant to the ground surface to permit sampling.

Approximately one liter of soil gas (slightly greater than three times the volume of the annular space of the screen pack plus the volume of the sample tubing) will be purged at a rate of less than 0.2 liters per minute using a personal air monitoring pump before collecting samples. During the soil gas purge, vapors will be screened with a PID. In addition, helium leak tests will be conducted at all locations to ensure samples are representative of sub-surface conditions and not outdoor ambient air. Helium tests will be conducted by encapsulating the sample point with a bucket sealed to the ground surface with hydrated bentonite. The encapsulated area will be filled with helium, but care will be taken not to pressurize the enclosure. The soil gas sample port will be tested for helium breakthrough with a portable monitoring device both before and after collection of the soil gas sample. If > 10 percent of the tracer gas are detected in the screening sample, the sample point seal will be enhanced and the procedure repeated. The soil gas samples will be collected with one-liter SUMMA®-type canisters with flow valves (set to approximately 20 minutes per sample). Flow into the canisters will be less than 0.2 liters per minute, as requested by the NYSDOH. Samples will be sent to a NYSDEC approved offsite laboratory for analyses of VOCs by USEPA Method TO-15 (43 Compound List - 1.0 micrograms per cubic meter Method Reporting Limit).

Groundwater Sampling.

Groundwater grab samples will be collected at each of the planned eight locations. The objective of the groundwater sampling is to assess potential concentrations of solvent contamination in shallow groundwater at the soil gas sampling locations to aid in the evaluation of the soil gas results. Based on historical Site records, water saturated soils are found a depths between 5 and 10 feet bgs.

Grab samples will be collected using direct-push drilling methods to advance a boring to a planned depth of two feet below the water table. Samples will be collected using a discrete sampler such as a Hydropunch or by an approved alternate method. Groundwater samples may be collected using a small diameter stainless steel wire wound screen that will be exposed to the aquifer, after being pushed to the desired depth interval. A check valve or geopump will be used for the collection of discrete groundwater samples. If possible, one tubing volume of water will be purged and one set of parameters including temperature, conductivity, pH, and turbidity will be collected before sampling. VOC samples will be collected at a low purge rate (approximately 100 milliliters per minute) to minimize potential volatilization. The actual number of samples per boring and sample collection depths may vary according to field conditions. After sampling, each open borehole will be filled with bentonite or bentonite-cement grout as directed by MACTEC and the hole will be sealed at the surface using asphalt patch, as appropriate.

Groundwater samples will be shipped to an off-site laboratory for analyses for TCL VOCs using USEPA 8260 methods as described in the NYSDEC ASP of June 2000. Off-site laboratory analysis will include Category B deliverables.

Data Report

Upon receipt of the analytical laboratory data, a letter report will be prepared. The letter report will include a narrative description of the sampling activities completed at the site and will identify any deviations from scope presented in the Work Plan. The report will include a figure identifying the locations of all samples and data tables presenting validated results for each sample and media type. The report narrative will briefly summarize significant data findings. To determine whether the laboratory data meets the project specific criteria for data quality and data use a Data Usability Summary Report (DUSR) will be prepared. The DUSR will be prepared in accordance with the "Guidance for the Development of Data Usability Reports" (NYSDEC, 1997) and included as an appendix to the RI Report.

Three paper copies and one PDF copy of a letter report will be submitted to the NYSDEC presenting analytical results. Analytical Form I's will be attached to the letter report.

If you have any questions or concerns, please feel free to call myself at 207-828-3644 or Eric Sandin at 207-828-3556.

Sincerely,

MACTEC Engineering and Consulting, P.C.

John W. Peterson
Project Manager

William J. Weber, P.E.
Program Manager

Enclosures (3)

cc: Lisa Lewis (NYSDEC)

File 4.2

REFERENCES

ABB Environmental Services, 1995. *Quality Assurance Program Plan*. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June 1995.

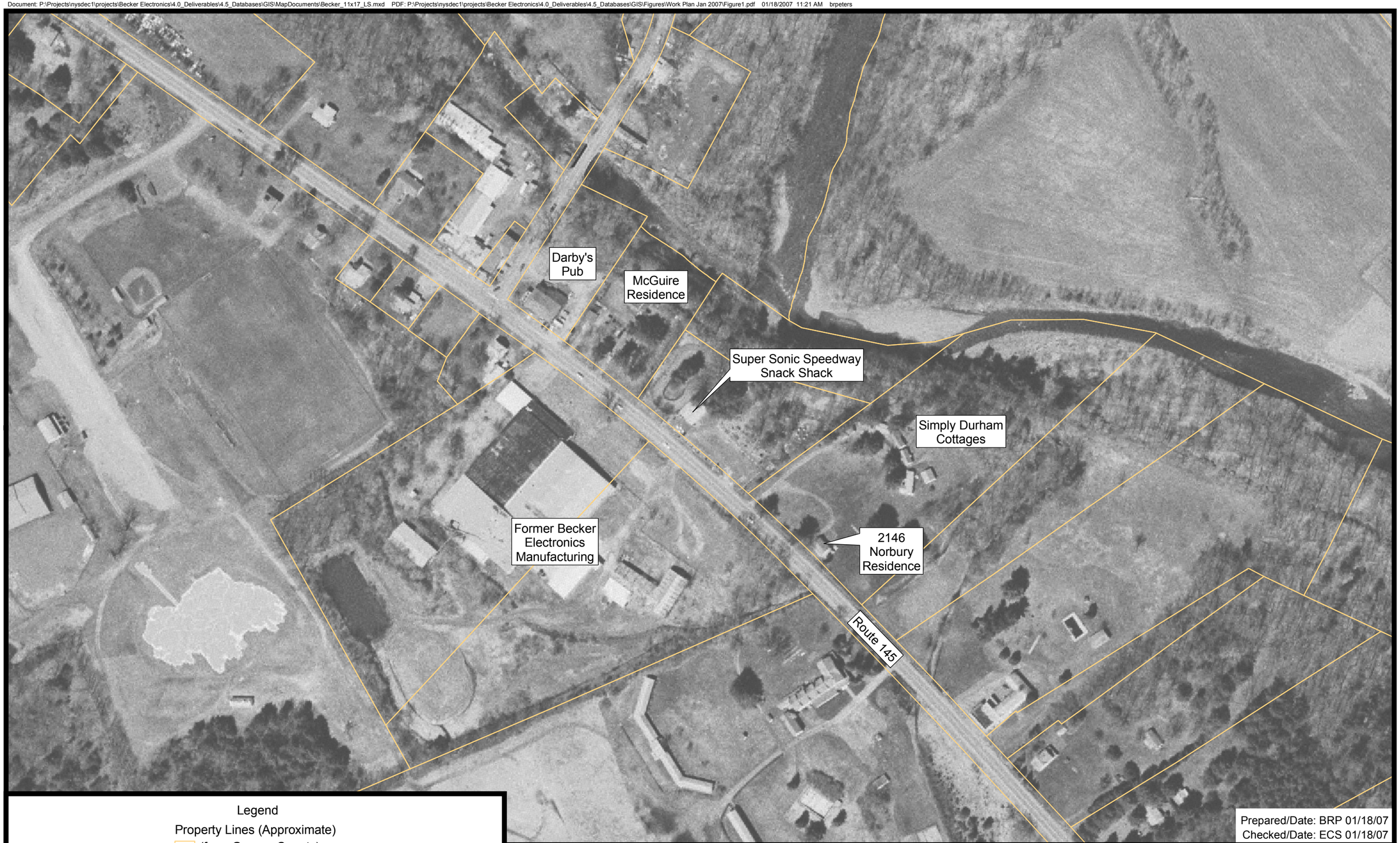
MACTEC Engineering and Consulting, Inc. P.C., 2005. *Program Health and Safety Plan*. Prepared for New York State Department of Environmental Conservation, Albany, New York. 2005.

New York State Department of Health (NYSDOH), 2005. *"Guidance for Evaluating Soil Vapor Intrusion in the State of New York"*, Final, October 2006

Table 1: Soil Vapor Evaluation Sampling Locations

Location ID	Soil Vapor ID[1] (Shallow)	Soil Vapor ID[1] (Deep, if collected)	Groundwater ID	Location Description
420007-V-1	BEGV001xx	BEGV001xx	BEGW001	Between southeast corner of Speedway Snack Shack and Route 145. To evaluate soil vapor downgradient of source area and upgradient of the Snack Shop.
420007-V-2	BEGV002xx	BEGV002xx	BEGW002	Between southeast corner of Darby's pub and Route 145. To evaluate soil vapor upgradient of the pub.
420007-V-3	BEGV003xx	BEGV003xx	BEGW003	Along south side of Route 145 between monitoring well pair and road. To evaluate soil vapor leaving the property opposite McGuire residence.
420007-V-4	BEGV004xx	BEGV004xx	BEGW004	On grass strip along western property edge. To evaluate soil vapor at northwestern property boundary and adjacent to nearest residence.
420007-V-5	BEGV005xx	BEGV005xx	BEGW005	On grass, adjacent and north of MW-107. To evaluate soil vapor north of source area and near a pumping well.
420007-V-6	BEGV006xx	BEGV006xx	BEGW006	On grass, south of effluent discharge line into local brook. To evaluate soil vapor near eastern property boundary.
420007-V-7	BEGV007xx	BEGV007xx	BEGW007	On grass, approximately 15 feet north of existing structure. Location of former Chemical Storage Building (demolished)
420007-V-8	BEGV008xx	BEGV008xx	BEGW008	On driveway or grass of 2146 (Guy Norbury residence). To evaluate soil gas upgradient of Simply Durham Cottages and related structures.

Notes
1 - xx denotes placeholder for bottom depth of soil vapor impant
ID KEYS: BE - Becker Elctronics Manaufacturing Site
GV - Geoprobe Soil Vapor
GW - Geoprobe Water
001 - Location 001
xx - depth feet below ground surface



Legend

Property Lines (Approximate)

(from Greene County)

N

0 100 200 Feet

Greene County digital orthoimagery (2004) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

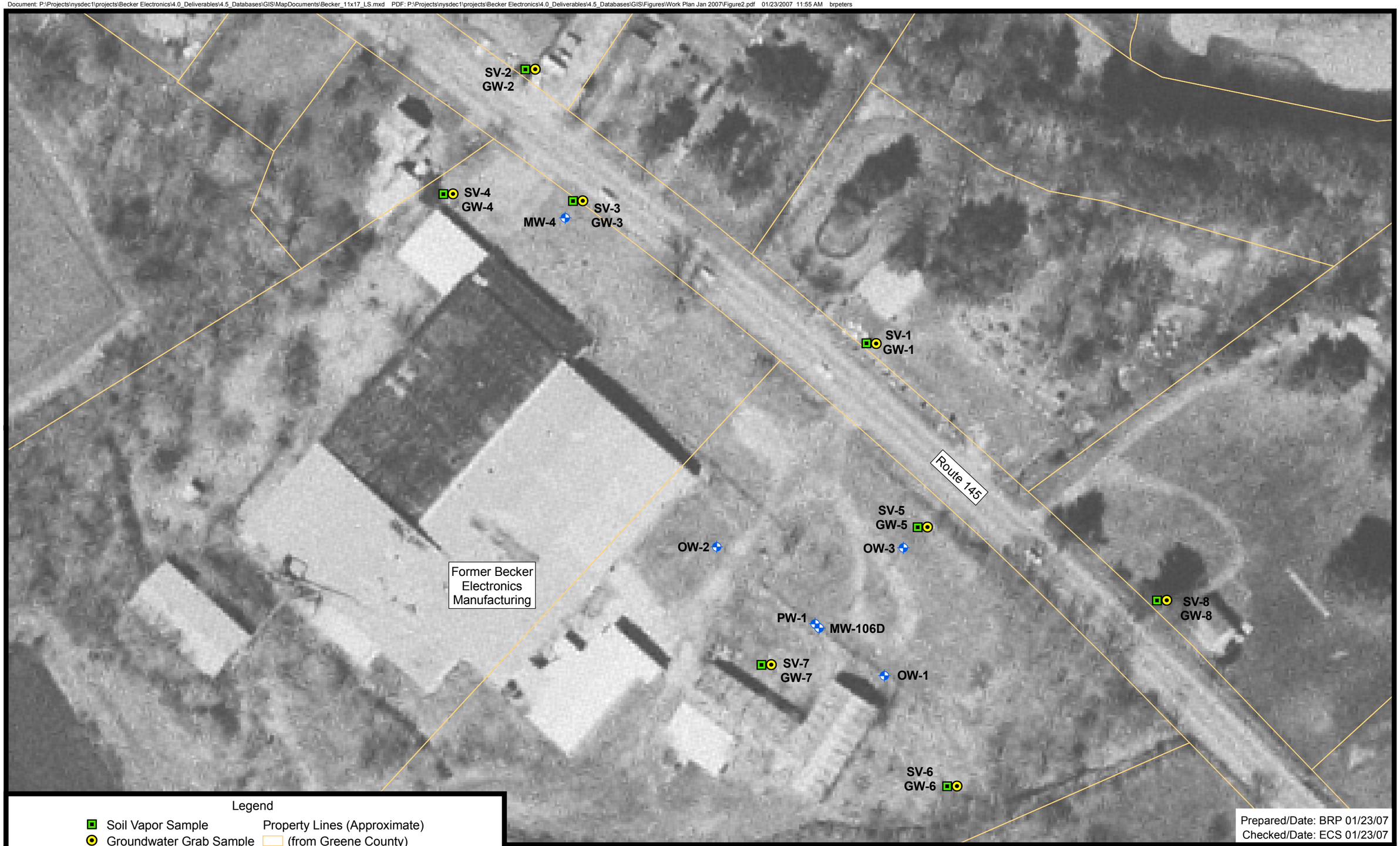
NYSDEC
Becker Electronics Mfg.
Durham, New York

MACTEC

Site Location

Project 3612-07-2072 Figure 1

Prepared/Date: BRP 01/18/07
Checked/Date: ECS 01/18/07



Legend

- Soil Vapor Sample
- Groundwater Grab Sample
- Existing Well
- Property Lines (Approximate)
- (from Greene County)

N

0 40 80 Feet

Greene County digital orthoimagery (2004) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Prepared/Date: BRP 01/23/07
Checked/Date: ECS 01/23/07

NYSDEC
Becker Electronics Mfg.
Durham, New York

MACTEC

Proposed Sampling Locations

Project 3612-07-2072 Figure 2

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN
BECKER ELECTRONICS MANUFACTURING SITE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

This Quality Assurance Project Plan (QAPjP) identifies sections of the QAPP (ABB ES, 1995) that apply to the activities described in the site Work Plan, describes variances to those procedures, and specifies the analytical methods used for laboratory analysis of environmental samples.

1.0 GENERAL PROCEDURES AND PRACTICES

The general procedures used to conduct the IIWA at the Becker Electronics Manufacturing site (Site) will be taken from the following sections of the QAPP:

Section 2.0	Program Organization and Responsibilities
Section 9.0	Internal Quality Control
Section 11.0	Preventive Maintenance
Section 12.0	Data Assessment
Section 13.0	Corrective Action
Section 14.0	Reports to Management

2.0 FIELD PROCEDURES AND SAMPLING

The following field investigation techniques and procedures set forth in the QAPP will be used at the site:

QA/QC Procedures	Section 3.0
Decontamination	Subsection 4.3
Sample Handling	Subsections 4.5 and 5.0

Field Instrument Calibration	Section 6.0

The following variances to the above procedures are described in subsections 2.1 to 2.2.

2.1 SAMPLING AND ANALYSIS PROGRAM

Data Quality Objectives (DQOs) for the Site sampling activities are summarized in Table A-1. DQOs are described in accordance with USEPA guidelines (USEPA, 1987) and the NYSDEC Analytical Services Protocols (ASP) (NYSDEC, 2000).

Analytical data requirements were established using the methods described in the ASP. Analytical methods to be used for laboratory analysis are presented in Table A-2. Analytical Level B deliverables as described in the ASP will be provided by the laboratory. Data Usability Summary Report (DUSR) will be issued based on DEC guidelines (NYSDEC, 1997).

2.2 SAMPLING IDENTIFICATION

Sample identification will adhere to Subsection 4.1 of the QAPP with the following exception and clarifications:

Digits 1,2 Sample identification will begin with the site designator BE for Becker Electronics.

Digits 3,4 Sample Type will include the following identifications:

SV- Soil Vapor (Geoprobe Soil Vapor Implant sample)

GW - Groundwater (Geoprobe grab water sample)

REFERENCE

ABB Environmental Services, 1995. Program Quality Assurance Program Plan. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June 1995.

New York State Department of Environmental Conservation (NYSDEC), 2000. *"Analytical Services Protocols"*; 6/00 Edition; June 2000.

U.S. Environmental Protection Agency (USEPA), 1987. "Data Quality Objectives for Remedial Response Activities"; Office of Emergency and Remedial Response and Office of Waste Programs Enforcement; Washington DC; EPA/540/G-87/003; March 1987.

Table A-1:

Analytical DQO Levels

Parameter	Use	Data Quality Level
PID screening	Provides qualitative real-time information on air quality in the breathing zone for health and safety decisions, and to identify potentially contaminated groundwater.	Level I
TCL VOCs	Provides analytical information to: 1) compare to standards and guidance values,	Level III

Notes:

TCL = target compound list

VOCs = volatile organic compounds

Table A-2:

Summary of Analytical Methods

Media	Parameter	Method
Soil Gas	TCL VOCS	USEPA Method TO-15.
Groundwater	TCL VOCS	USEPA Method 8260

Notes:

TCL = target compound list

VOCs = volatile organic compounds

TABLE A-3
SUMMARY OF TO-15 TARGET COMPOUNDS AND REPORTING LIMITS

Compound	CAS	MDL (ppbv)	PQL (ppbv)	MDL (ug/m3)	PQL (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.028	0.1	0.15	0.55
1,1,2,2-Tetrachloroethane	79-34-5	0.047	0.1	0.33	0.69
1,1,2-Trichloroethane	79-00-5	0.043	0.1	0.24	0.55
1,1-Dichloroethane	75-34-3	0.03	0.1	0.12	0.4
1,1-Dichloroethene	75-35-4	0.034	0.1	0.133	0.4
1,2,4-Trichlorobenzene	120-82-1	0.051	0.1	0.38	0.74
1,2-Dichloropropane	78-87-5	0.054	0.1	0.25	0.46
1,3-Dichloropropene	542-75-6	0.047	0.1	0.22	0.45
1,4-Dichlorobenzene (p-)	106-46-7	0.054	0.1	0.32	0.29
Benzene	71-43-2	0.031	0.1	0.1	0.32
Bromomethane	74-83-9	0.022	0.1	0.08	0.39
Carbon tetrachloride	56-23-5	0.061	0.1	0.39	0.63
Chlorobenzene	108-90-7	0.047	0.1	0.22	0.46
Chloroethane	75-00-3	0.024	0.1	0.06	0.26
Chloroform	67-66-3	0.022	0.1	0.11	0.49
Chloromethane	74-87-3	0.031	0.1	0.06	0.21
Ethylbenzene	100-41-4	0.034	0.1	0.33	0.43
Ethylene dibromide (1,2-dibromoethane)	106-93-4	0.041	0.1	0.031	0.77
Hexachlorobutadiene	87-68-3	0.066	0.1	0.071	1.07
Methylene chloride	75-09-2	0.047	0.1	0.16	0.35
m-Xylene	108-38-3	0.084	0.2	0.36	0.87
o-Xylene	95-47-6	0.05	0.1	0.22	0.43
p-Xylene	106-42-3	0.084	0.2	0.36	0.87
Styrene	100-42-5	0.04	0.1	0.17	0.43
Tetrachloroethene	127-18-4	0.038	0.1	0.26	0.68
Toluene	108-88-3	0.054	0.1	0.2	0.38
Trichloroethene	79-01-6	0.043	0.1	0.23	0.54
Vinyl chloride	75-01-4	0.031	0.1	0.08	0.26

1,3-Butadiene	106-99-0	0.07	0.1	0.15	0.22
Hexane	110-54-3	0.024	0.1	0.08	0.29
Methyl ethyl ketone (2-butanone)	78-93-3	0.07	0.1	0.2	0.35
Vinyl acetate	108-05-4	0.025	0.1	0.09	0.35
1,2,4-Trimethylbenzene (Pseudocumene)	95-63-6	0.048	0.1	0.24	0.49
1,2-Dichlorobenzene	95-50-1	0.049	0.1	0.3	0.6
1,2-Dichloroethane	107-06-2	0.065	0.1	0.26	0.4
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	0.054	0.1	0.26	0.49
1,3-Dichlorobenzene	541-73-1	0.065	0.1	0.39	0.6
cis-1,2-Dichloroethene	156-59-2	0.043	0.1	0.17	0.4
Freon 11 (Trichlorofluoromethane)	75-69-4	0.041	0.1	0.23	0.56
Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	76-13-1	0.024	0.1	0.18	0.77
Freon 114 (1,2-Dichloro-1,1,2,2-tetrafluoroethane)	76-14-2	0.028	0.1	0.02	0.7
Freon 12 (Dichlorodifluoromethane)	75-71-8	0.031	0.1	0.15	0.49
trans-1,3-Dichloropropene	542-75-6	0.047	0.1	0.22	0.45
1,4-Dioxane	123-91-1	0.054	0.1	0.19	0.36
2,2,4-Trimethyl pentane	540-84-l	0.026	0.1	0.12	0.47
2-Hexanone	591-78-6	0.04	0.1	0.16	0.36
Acetone	67-64-1	0.126	0.1	0.3	0.24
Bromodichloromethane	75-27-4	0.035	0.1	0.23	0.67
Bromoform	75-25-2	0.035	0.1	0.36	1.03
Carbon disulfide	75-15-0	0.022	0.1	0.07	0.31
Cyclohexane	110-82-7	0.07	0.1	0.23	0.34
Dibromochloromethane	124-48-1	0.041	0.1	0.34	0.85
Methyl isobutyl ketone (4-Methyl-2-pentanone)	108-10-1	0.06	0.1	0.24	0.41
Methyl tert-butyl ether	1634-04-4	0.043	0.1	0.16	0.36
trans-1,2-Dichloroethene	156-60-5	0.038	0.1	0.15	0.4
SIM Analysis					
Trichloroethene (TCE)	79-01-6	0.025	0.025	0.13	0.13
Tetrachloroethene (PCE)	127-18-4	0.022	0.025	0.15	0.17

HEALTH AND SAFETY PLAN

MACTEC Engineering and Consulting, PC.

HEALTH AND SAFETY PLAN

MACTEC Engineering and Consulting, PC. (MACTEC), under contract to the New York State Department of Environmental Conservation (NYSDEC), is implementing an Immediate Investigation Work Assignment (IIWA) of the Becker Electronics Manufacturing Site (Site) in Queens County, New York. The Site is listed as a hazardous waste site, Site No. 4-20-007, in the Registry of Hazardous Waste Sites in New York State. This Health and Safety Plan (HASP) has been prepared in accordance with the requirements of the NYSDEC as identified in Work Assignment (WA) No. D004434-2, under the Superfund Standby Contract between MACTEC and the NYSDEC.

The purpose of this HASP is to protect the health and safety of on-site personnel and the surrounding community during investigation activities at the Site. This HASP is based on the MACTEC Program HASP (MACTEC, 2005) and consists of a site-specific HASP Addendum to document site-specific aspects of the Becker Electronics Manufacturing Site IIWA.

Prior to initiation of investigation activities, MACTEC will notify the local fire, police, and potential emergency responders, as deemed necessary, to advise them of the activities that will take place and the schedule of these activities. The private home owners/tenants will also be notified prior to the investigation. If necessary adjacent property owners will be notified, however, the Site is a low hazard site and notification of adjacent property owners is not anticipated as a necessary procedure unless specific access is required to adjacent properties.

In the event of an emergency or corresponding evacuation procedure, evacuation procedures documented in the HASP Addendum will be followed and the emergency contacts notified.

MACTEC, Inc.

MACTEC Short Form HASP

Site: Becker Electronics Job Number: 3612072072 – 02
Street Address: Route 145 East Durham, NY
Proposed Date(s) of Investigation: 2-05-2007 through 3-10-2007
Prepared by: Eric Sandin Date: 1-23-2007
*Approved by: Date:
Site Description: Various locations alongside Route 145 and on unpaved level ground on Becker property

Proposed Activity(s): Geoprobe drilling with groundwater and soil vapor sampling (See Work Plan for full details)

*Approval also serves as certification of a Hazard Assessment as required by 29 CFR 1910.132

Known or Suspected Contaminants (include PELs/TLVs):

Contaminants of Concern	PEL/TLV
Groundwater: 1,1,1 TCA (<500 ppb GW)	350 ppm
TCE (<100 ppb GW)	50 ppm
1,2 DCE (<100 ppb GW)	200 ppm
1,1 DCE (<100 ppb GW)	1 ppm
1,1 DCA (<400 ppb GW)	100 ppm
Vinyl Chloride (< 10 ppb GW)	1 ppm

JHAs: Check and attach all that apply:

Activity Specific JHAs:

☒	Mobilization/Demobilization and Site Preparation
☒	Field Work - General
☒	Groundwater Sampling
☐	Drilling Operation (MACTEC Driller)
☒	Soil Sampling
☐	Geoprobe (MACTEC Geoprobe Operator
☐	Excavations and Backfilling
☒	Decontamination
☐	Stream/Wetlands Work
☐	Clearing Brush and Trees
☐	Chain Saw
☐	

Hazard Specific JHAs:

☐	Insect Stings and Bites
☐	Gasoline
☒	Working with Preservatives (Acids)
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	

Chemicals Brought to the Site:
List all chemicals brought to the site (e.g., preservatives, decontamination solutions, gasoline, etc.). Attach MSDS

Chemicals	MSDS Attached?
HELIUM GAS (RENTAL CYLINDER)	☐
HCL (PRESERVATIVE IN GLASS VIALS)	☐
	☐

Chemicals will be kept in their original containers. If transferred to another container, aside from days use by one individual, the new container will be labeled with the name of the chemical and the hazard warnings.

HAZARD IDENTIFICATION SUMMARY

Complete the checklist for summarizing the hazards identified in the JHAs

Standard Hazards			
☐ Falling Objects	☒ Slips and trips	☐ Pinch points	☒ Rotating equipment
☒ Falls	☒ Power equipment/tools	☐ Elevated work surfaces	☒ Cold Stress
Eye Hazards			
☒ Particulates	☐ Liquid splashes	☐ Welding Arc	☐ _____
Hearing Hazards			
☐ None	☒ Impact noise	☐ High frequency noise	☒ High ambient noise
Respiratory Hazards			
☐ None	☐ Dust / aerosols / particulates	☒ Organic Vapors	☐ Acid Gases
☐ Oxygen deficient	☐ Metals	☐ Asbestos	☐ _____
Chemical Hazards			
☐ None	☐ Organic solvents	☐ Reactive metals	☐ PCBs
☒ Acids / bases	☐ Oxidizers	Volatiles/Semi-volatiles	_____
Environmental Hazards			
☐ None	☒ Temperature extremes ☒ Cold ☐ Heat	☐ Wet location	☐ Bio hazards (snakes, insects, spiders, poisonous plants, etc.)
☐ Explosive vapors	☐ Confined space	☐ Engulfment Hazard	☐ _____
Electrical Hazards			
☐ None	☐ Energized equipment or circuits	☒ Overhead utilities ☐ Underground utilities	☐ Wet location
Fire Hazards			
☒ None	☐ Cutting, welding, or grinding generated sparks or heat sources	☐ Flammable materials present	☐ Oxygen enriched location
Ergonomic Hazards			
☒ Lifting	☒ Bending	☐ Twisting	☒ Pulling/tugging
Computer Use in the: ☐ Office ☐ Field	☐ Repetitive motion	☒ Carrying	☐ _____
Radiological Hazards			
☒ None	☐ Alpha	☐ Beta	☐ Gamma/X-rays
☐ Neutron	☐ Radon	☐ Non-Ionizing	☐
Other Hazards			
☐			
☐			

PPE and Monitoring Instruments

Initial Level of PPE				
☒ Level D	☐ Modified Level D	☐ Level C	☐ Level B*	☐ Level A*
* Cannot use short form HASP for Level B or A work				
Standard PPE				
☒ Hard Hat (working w/ rigs)	☒ Safety boots	☒ Safety glasses	☐ Chemical Resistant Boots	
☒ High visibility vest	☐ Other:_____			
Eye and Face Protection				
☐ Face shield	☐ Vented goggles	☐ Unvented goggles	☐ Indirect vented goggles	
Hearing Protection				
☒ Ear plugs	☐ Ear Muffs	☐ Ear plugs and muffs	☐ Other _____	
Respiratory Protection				
☐ None	☐ Dust mask	☒ Full Face APR (upgrade) ☐ Half Face APR	Cartridge Type: Ultra Twin Change Cartridges: 3.5 hrs	
Protective Clothing				
☐ White uncoated Tyvek®	☐ Poly-coated Tyvek®	☐ Saranex®	☒ Work uniform (long sleeves, long pants)	
☐ Boot covers	☐ Reflective vest	☐ Chaps or Snake Legs	☒ Other insulated coveralls (optional)	
Hand Protection				
☐ None	☐ Cotton gloves	☐ Leather gloves	☐ Glove liners	
☒ Outer Gloves List Type vinyl	☒ Inner Gloves List Type nitrile	☐ Cut-resistant gloves	☒ Other optional cotton liners for warmth	
Monitoring Instruments Required				
☐ LEL/O2 Meter	☒ PID ☐ 10.0-10.6 eV Lamp ☒ 11.7 eV Lamp	☐ FID	☐ Hydrogen Sulfide/Carbon Monoxide	
☐ Dräger Pump (or equivalent) List Tubes_____		☐ Dust Meter (lead) ☐ Respirable dust ☐ Total dust	☐ Other _____	

Air Monitoring Action Levels:

PID READING [1]	DETECTOR TUBE [1]	ACTION	REQUIRED PPE
Sustain above background	NA	Back off and re-assess with H&S representative(s). (Based upon 1,1DCE)	Level D (upgrade to level C if directed)
2.5 mg/m^3	Dust monitor respirable dust (	Move upwind. Implement dust control measures. Continue to monitor. If dust persists consult H&S representative(s).	Level D

[1] Sustained readings measured in the breathing zone

PPE Selection Guidelines:

When selecting the appropriate PPE for the job, consider the following:

- **Safety glasses** – general eye protection – source of hazard, typically coming from straight on , required at most sites
- **Tinted Safety Glasses** – same as above, but when working in direct sunlight. May need two both tinted and untinted if working in both sunlight and shade/overcast skies.
- **Safety goggles** – needed for splash hazard, more severe eye exposures coming from all directions. Non-vented or indirect venting for chemical splash, non-vented for hazardous gases or very fine dust, vented for larger particulates coming from all directions.
- **Face shield** – needed to protect face from cuts, burns, chemicals (corrosives or chemicals with skin notation), etc.
- **Safety boots** – needed if danger of items being dropped on foot that could injure foot
- **Hard hat** – danger from items falling on head – any overhead work, tools, equipment, etc that is above the head and could fall on head of item fails, or falls off work platform. Typically required at most sites as a general PPE
- **Thin, chemical protective inner gloves** (e.g., thin Nitrile, PVC – do not use latex – many people are allergic to latex) –needed to protect hands from incidental contact with low risk contamination at very low concentrations (ppb or low ppm concentrations in groundwater or soil) or used in combination with outer gloves as a last defense against contamination. Need to specify type
- **Outer gloves** – thicker gloves (e.g., Nitrile, Butyl, Viton, etc.) – used when potential for high concentrations of contaminants (e.g., floating product, percent ranges of contaminant, opening drums, handling pure undiluted chemicals, etc.). Need to specify type.
- **Leather gloves, leather palm, cotton** – good in protecting hands against cuts – no protection from chemicals. May be used in combination with chemical protective gloves.
- **Boot Covers –** when there is contamination in surface soils or waking surface in general. When safety boots need protection from contact with contaminants.
- **White (uncoated) Tyveks** – protect clothing from getting dirty, good for protection against solid, non-volatile chemicals (e.g., asbestos, metals) – no chemical protection.
- **Polycoated Tyveks** – least protective of chemical protective clothing. Used when some risk of contamination getting on skin or clothing. Usually, lower ppm ranges of contaminants.
- **Saranex** – Greater protection against contamination than Polycoated Tyveks. Used to protect against PCBs or higher concentrations of contaminants in the soil or groundwater.
- **Other Chemical protective clothing** – if significant risk of dermal exposure, contact H&S to determine best kind.
- **Long sleeved shirts, long pants** – if working in areas with poison ivy/oak/sumac, poisonous insects, etc. and no chemicals exposure. May want to use uncoated Tyveks for work in areas where poisonous plants are know to be to protect clothing.
- **Cartridge Respirator (Level C PPE)** – Need to calculate change schedule (contact Division EH&S Manager for this) to determine length of use. To be able to use cartridge respirators, need to know contaminants, estimate levels to be encountered in the breathing zone, need to ensure that cartridge will be effective against COCs, and need to be able to monitor for COCs using PID, FID, Dräger tubes, etc.. If can't do any of these, then Level B PPE is probably going to be needed.
- **High Visibility Vest** – needed for any road work (with in 15 feet of a road) or when working on a site with vehicular traffic or working around heavy equipment. Needed if work tasks would take employee concentration away from movement of vehicles and workers would have to rely on the other driver's ability to see the employee in order not to hit them. This includes heavy equipment as well as cars and trucks, on public roads or the jobsite. Not needed if wearing Polycoated Tyveks – as they are already high visibility.
- **Reflective Vest** – see above, but for use at night.
- **Hearing Protection** – needed if working at noise levels above 85 dBA on a time weighted average. If noise measurements are not available, use around noisy equipment, or in general, if you have to raise your voice to be heard when talking to someone standing two feet away.
- **Protective Chaps –** required when using a machete or chain saw or any other cut hazard with legs.
- **Modified Level D PPE –** Level C protection without the respirator. (i.e. boots, safety glasses, gloves, tyvek, option hearing protection and hard hat.)

Work Zones:

The work zones will be defined relative to the location of the work activity. The Exclusion Zone is considered the area within a 10-foot diameter of the sampling location. The Contamination Reduction Zone is considered to be the area with in a 20-foot diameter of the sampling location. The decontamination zone is located upwind of the work area. Work zones will be maintained through the use of:

XX Warning Tape Around drill rig and working zone when near road
XX Visual Observations

Site Communication:

XX Verbal
____ Two-way radio
XX Cellular telephone
____ Hand signals

- Hand gripping throat ---------- Out of air, can't breathe
- Grip partner's wrist or both hands around waist ---------- Leave area immediately
- Hands on top of head ---------- Need assistance
- Thumbs up ---------- OK, I am all right, I understand
- Thumbs down ---------- No, negative

XX Horn
____ Siren
____ Other:

EMERGENCY CONTACTS

NAME	TELEPHONE NUMBERS		DATE OF PRE-EMERGENCY NOTIFICATION (if applicable)
Fire Department:	911		
Hospital: Benedictine Hospital	5i8-334-3088		
Columbia Memorial Hospital	518-828-76010		
Police Department:	911		
Site Health And Safety Officer: Brandon Shaw	Office: 207-775-5401	Home:	
Client Contact: NYSDEC Benjamin Rung	Office: 518 -402-9813	Pager:	
Project Manager: John Peterson	Office: 207-775-5401	Home:	
Division EH&S Manager: Cindy Sundquist	Office: 207-828-3309	Cell: 207-650-7593	
EPA/DEP (if applicable):			
OTHER: Ambulance	911		
Health Resources	800-350-4511		
Poison Control	800-492-2414		

Emergency Equipment:

The following emergency response equipment is required for this project and shall be readily available:

XX Field First Aid Kit
XX Fire Extinguisher (ABC type) **May be driller's**
_____ Eyewash (Note: 15 minutes of free-flowing fresh water)
_____ Other: _____

EMERGENCY PROCEDURES

- The HSO (or alternate) should be immediately notified via the on-site communication system. The HSO assumes control of the emergency response.
- The HSO notifies the Project Manager and client contact of the emergency. The HSO shall then contact the Division ES&H Manager who will then contact the Corporate EH&S Manager.
- If applicable, the HSO shall notify off-site emergency responders (e.g. fire department, hospital, police department, etc.) and shall inform the response team as to the nature and location of the emergency on-site.
- If applicable, the HSO evacuates the site. Site workers should move to the predetermined evacuation point (See Site Map).
- For small fires, flames should be extinguished using the fire extinguisher. Large fires should be handled by the local fire department.
- In an unknown situation or if responding to toxic gas emergencies, appropriate PPE, including SCBAs (if available), should be donned. If appropriate PPE is unavailable, site workers should evacuate and call in emergency personnel.
- If chemicals are accidentally spilled or splashed into eyes or on skin, use eyewash and wash affected area. Site worker should shower as soon as possible after incident.
- If a worker is injured, first aid shall be administered by certified first aid provider.
- If the emergency involves toxic gases, workers will back off and reassess. Prior to re-entering the work zone, the area must be determined to be safe. Entry will be using Level B PPE and utilize appropriate monitoring equipment to verify that the site is safe.
- An injured worker shall be decontaminated appropriately.
- After the response, the SHSO shall follow-up with the required company reporting procedures, including the completing the MACTEC Incident Analysis Report.

Site Specific Emergency Procedures are as follows:

Investigative Derived Waste Soil will be spread at location of the borings.

Routes to Emergency Medical Facilities

PRIMARY HOSPITAL:

Facility Name: Benedictine Hospital
Address: 45 Five Mile Woods Road Catskill NY (12.4 miles)
Telephone Number 518 334-3088

DIRECTIONS TO PRIMARY HOSPITAL (attach map):

Go 6.3 miles east on Route 145; Continue east on Rte 23 for 6 miles; Right on 5 Mile Woods Road; Hospital is #45.

ALTERNATE HOSPITAL:

Facility Name: Columbia Memorial Hospital
Address: 71 Prospect Ave, Hudson, NY (21.9 miles)
Telephone Number 518-828-7601

DIRECTIONS TO ALTERNATE HOSPITAL (attach map):

Go 6.3 miles east on Route 145; Continue east on Rte 23 for 11.8 miles; LEFT on Route 9G, go 2.8 miles; RIGHT on Warren St, go 0.8 miles; LEFT on Prospect Ave for 0.2 miles; Columbia Hospital is on the left on Prospect Ave.

COST TABLES

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Schedule 2.11(a)
Summary of Work Assignment Price

1	..... DIRECT SALARY COSTS (Schedules 2.10(a) and 2.11 (b))	**$ 6,967**
2	..... INDIRECT COSTS (Schedule 2.10(g))	**$ 11,607**
3	DIRECT NON-SALARY COSTS (Schedules 2.10(d)(e)(f) and 2.11 (c) and (d))	**$ 2,574**

SUBCONTRACT COSTS
COST-PLUS-FIXED-FEE SUBCONTRACTS
(Schedule 2.11(e))

Name of Subcontractor	Services to be Performed	Subcontract Price
		$ -
		$ -
		$ -

4	..... TOTAL COST-PLUS-FIXED-FEE SUBCONTRACTS	**$ -**

UNIT PRICE SUBCONTRACTS
(Schedule 2.11(f))

Name of Subcontractor	Services to be Performed	Subcontract Price
ADT	geoprobe gw/soil gas	$ 8,110
Air Toxics	Analytical Laboratory	$ 6,035
		$ -
		$ -
		$ -

5	..... TOTAL UNIT PRICE SUBCONTRACTS	**$ 14,145**
6	..... SUBCONTRACT MANAGEMENT FEE	**$ 241**
7	.....TOTAL SUBCONTRACT COSTS (Lines 4 + 5 + 6)	**$ 14,386**
8	..... FIXED FEE (Schedule 2.10(h))	**$ 929**
9	**..... TOTAL WORK ASSIGNMENT PRICE (Lines 1 + 2 + 3 + 7 + 8)**	**$ 36,463**

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing **Schedule 2.11(b)**
Work Assignment Number: **Direct Labor Hours Budgeted**

GRADE LEVEL	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL
2006 Rates	**$60.73**	**$52.35**	**$45.56**	**$42.71**	**$38.03**	**$32.82**	**$26.98**	**$23.16**	**$20.02**	
2007 Rates	**$62.55**	**$53.92**	**$46.93**	**$43.99**	**$39.17**	**$33.80**	**$27.79**	**$23.85**	**$20.62**	
2008 Rates	**$64.43**	**$55.54**	**$48.33**	**$45.31**	**$40.35**	**$34.82**	**$28.62**	**$24.57**	**$21.24**	
2009 Rates	**$66.36**	**$57.20**	**$49.78**	**$46.67**	**$41.56**	**$35.86**	**$29.48**	**$25.31**	**$21.88**	
2010 Rates	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	
Task 1 - Work Plan Development										
2006 Hours	0	0	0	0	0	0	0	0	0	0
2007 Hours	1	0	0	0	32	3	1	0	8	45
Total Hours	**1**	**0**	**0**	**0**	**32**	**3**	**1**	**0**	**8**	**45**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ 1,253.44	$ 101.40	$ 27.79	$ -	$ 154.65	$ 1,599.83
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ 1,253.44**	**$ 101.40**	**$ 27.79**	**$ -**	**$ 154.65**	**$ 1,599.83**
Task 2 - Vapor Intrusion Evaluation										
2007 Hours	2	0	0	0	36	0	62	3	2	105
Total Hours	**2**	**0**	**0**	**0**	**36**	**0**	**62**	**3**	**2**	**105**
2007 Labor Cost	$ 125.10	$ -	$ -	$ -	$ 1,410.12	$ -	$ 1,722.98	$ 71.55	$ 41.24	$ 3,370.99
Total Labor Cost	**$ 125.10**	**$ -**	**$ -**	**$ -**	**$ 1,410.12**	**$ -**	**$ 1,722.98**	**$ 71.55**	**$ 41.24**	**$ 3,370.99**
Task 3 - Reporting										
2007 Hours	1	0	0	0	34	2	12	2	8	59
Total Hours	**1**	**0**	**0**	**0**	**34**	**2**	**12**	**2**	**8**	**59**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ 1,331.78	$ 67.60	$ 333.48	$ 35.78	$ 164.96	$ 1,996.15
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ 1,331.78**	**$ 67.60**	**$ 333.48**	**$ 35.78**	**$ 164.96**	**$ 1,996.15**
2007 Total Labor Hours	**4**	**0**	**0**	**0**	**102**	**5**	**75**	**5**	**18**	**208**
2007 Total Direct Labor Cost ($)	**$ 250.20**	**$ -**	**$ -**	**$ -**	**$ 3,995.34**	**$ 169.00**	**$ 2,084.25**	**$ 107.33**	**$ 360.85**	**$ 6,966.97**
TOTAL LABOR HOURS	**4**	**0**	**0**	**0**	**102**	**5**	**75**	**5**	**18**	**208**
TOTAL DIRECT LABOR COST	**$ 250.20**	**$ -**	**$ -**	**$ -**	**$ 3,995.34**	**$ 169.00**	**$ 2,084.25**	**$ 107.33**	**$ 360.85**	**$ 6,966.97**

but not necessarily be limited to the following activities:

1) Work Plan Development
   - Conflict of Interest
   - Develop budget schedules & supporting documentation
2) Review work assignment (WA) progress
   - Conduct progress reviews
   - Prepare monthly project report
   - Update WA progress schedule
   - Prepare monthly M/WBE Utilization Report
3) Review WA costs
   - Prepare monthly cost control report
   - Cost control reviews

Contract/Project administration hours would not include activities such as

1) QA/QC reviews
2) Technical oversight by management
3) Develop subcontracts
4) CAP Preparation
   - Oversee and prepare monthly CAP
   - Respond to payment issues/disallowances
   - NSPE list updates
   - Equipment Inventory
5) Manage subcontracts
6) Implement and manage program management and staffing plans
7) Conduct Health and Safety Reviews
8) Word processing and graphic artists
9) Report editing
10) Review of deliverables

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Schedule 2.11(b-1)
Direct Adminstrative Labor Hours Budgetec

GRADE LEVEL	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL
2006 Rates	**$60.73**	**$52.35**	**$45.56**	**$42.71**	**$38.03**	**$32.82**	**$26.98**	**$23.16**	**$20.02**	
2007 Rates	**$62.55**	**$53.92**	**$46.93**	**$43.99**	**$39.17**	**$33.80**	**$27.79**	**$23.85**	**$20.62**	
2008 Rates	**$64.43**	**$55.54**	**$48.33**	**$45.31**	**$40.35**	**$34.82**	**$28.62**	**$24.57**	**$21.24**	
2009 Rates	**$66.36**	**$57.20**	**$49.78**	**$46.67**	**$41.56**	**$35.86**	**$29.48**	**$25.31**	**$21.88**	
2010 Rates	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	
Task 1 - Work Plan Development										
2007 Hours	0	0	0	0	0	0	1	0	0	1
Total Hours	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**
2007 Labor Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 27.79	$ -	$ -	28
Total Labor Cost	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 27.79**	**$ -**	**$ -**	**$ 27.79**
Task 2 - Vapor Intrusion Evaluation										
2007 Hours	1	0	0	0	0	0	0	3	0	4
Total Hours	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**4**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ -	$ -	$ -	$ 71.55	$ -	134
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 71.55**	**$ -**	$ 134.10
Task 3 - Reporting										
2007 Hours	1	0	0	0	0	0	0	2	0	3
Total Hours	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ -	$ -	$ -	$ 35.78	$ -	98
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 35.78**	**$ -**	**$ 98.33**
2007 Total Labor Hours	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**8**
2007 Total Direct Labor Cost ($)	**$ 125.10**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 27.79**	**$ 107.33**	**$ -**	**$ 260.22**
TOTAL LABOR HOURS	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**8**
TOTAL DIRECT LABOR COST	**$ 125.10**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 27.79**	**$ 107.33**	**$ -**	**$ 260.22**

Contract/Project administrative hours would include (subject to contract allowability)
but not necessarily be limited to the following activities

1) Work Plan Development
   - Conflict of Interest
   - Develop budget schedules & supporting documentation
2) Review work assignment (WA) progress
   - Conduct progress reviews
   - Prepare monthly project report
   - Update WA progress schedule
   - Prepare monthly M/WBE Utilization Repo
3) Review WA costs
   - Prepare monthly cost control report
   - Cost control reviews

Contract/Project administration hours would not include activities such as

1) QA/QC reviews
2) Technical oversight by management
3) Develop subcontracts
4) CAP Preparation
   - Oversee and prepare monthly CAP
   - Respond to payment issues/disallowances
   - NSPE list updates
   - Equipment Inventory
5) Manage subcontracts
6) Implement and manage program management and staffing plans
7) Conduct Health and Safety Reviews
8) Word processing and graphic artists
9) Report editing
10) Review of deliverables

Engineer: Mactec Engineering and Consulting Date Prepared: 01/23/07
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Schedule 2.11(c)
Direct Non-Salary Costs

Item	Maximum Reimbursement Rate	Unit	Estimated No. of Units	Total Estimated Cost
A) Sample Analysis Rates (In-House Cost Only)				
1) Groundwater	$0.00	each	0	$0.00
2) Soil Vapor	$0.00	each	0	$0.00
3) Sub-slab samples	$0.00	each	0	$0.00
	TOTAL			**$0.00**
B) Miscellaneous 1) TRAVEL				
Lodging	$ 64.65	night+taxes	5	$323.25
Meals and Incidentals[1]	$ 39.00	day	7	$234.00
Car Rental	$ 52.99	day	7	$ 370.93
Cargo Van Rental	$ -	day	0	$ -
Mileage	$ 0.445	mile	0	$0.00
LVE	$ 10	person/day	7	$ 70
Parking and Tolls	$ 94.00	LS	1	$94.00
Gas	Actual Costs	N/A	N/A	$142.86
Air Fare	$ -	avg. RT price	0	$ -
	TOTAL			**$1,235.04**
2) CONSULTANT OTHER DIRECT COSTS				
Printing/Photocopy	$0.05	page	1600	$80.00
CAD Computer	$7.50	hour	0	$0.00
Telephone & Fax	Actual Costs	N/A	N/A	$0.00
Shipping	Actual Costs	N/A	N/A	$250.00
Consumables	Actual Costs	N/A	N/A	$ 414
Other	$0.00	N/A	N/A	$0.00
	TOTAL			**$744.12**
Total ODCs				**$1,979.16**

Notes:
1. Total estimated cost for Meals and Incidentals adjusted to account for travel days.

Engineer: Mactec Engineering and Consulting **Date Prepared:** **01/23/07**
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Schedule 2.11(d) 3
Maximum Reimbursement Rates for Vendor Rented Equipment

(1) Item	(2) Task No	(3) Max. Reimbursement Rate ($ per week)*	(4) Est. Usage (Unit of Time) +	(5) Est. Rental Cost ($) (Col. 3 x 4)
MINIRAE PID	2	$ 160.00	2	$ 320
Radiodetction2002 Helium Detector	2	$ 150.00	1	$ 150
Geopump	2	$ 75.00	1	$ 75
Personal Air Pump	2	$ 50.00	1	$ 50
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
Total Vendor Rented Equipment				**$ 595**

Notes:
* Reimbursement will be made at the Maximum Reimbursement rate or the actual rental rate, whichever is less.
+ Usage time includes shipping to and from site.

Engineer: Mactec Engineering and Consulting **Date Prepared:** **01/23/07**
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Schedule 2.11(f)
Unit Price Subcontracts

Vapor Intrusion Evaluation

Name of Subcontractor	Service		Price	Management Fee
neither minority or woman owned business	geoprobe			
ADT	gw/soil gas		$ 8,110	$ -
Item	**Units**	**UOM**	**Unit Cost**	**Total Cost**
1c Mobilization	1	LS	$ 100.00	$ 100.00
4 Direct Push	4	DAY	$ 1,400.00	$ 5,600.00
6 Temporary Decon Pad	1	LS	$300.00	$ 300.00
11 Groundwater Sample w/ Hydropunch	8	EA	$20	$ 160.00
12 Soil Vapor Implants	16	EA	$75	$ 1,200.00
Utility Markout / Mark Locations	3	hrs	$250.00	$ 750.00
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -

Subtotal Cost:	$	8,110
Management Fee:	$	-
Total:	**$**	**8,110**

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Schedule 2.11(f)
Unit Price Subcontracts

Vapor Intrusion Evaluation

Name of Subcontractor	Service		Price	Management Fee
woman owned buisness				
Air Toxics	Analytical Laboratory		$ 6,035	$ 241
Item	**Units**	**UOM**	**Unit Cost**	**Total Cost**
				$ -
TCL VOC by 8260 (groundwater)	11	ea	$85	$ 935.00
VOC by EPA TO-15 (soil gas)	17	ea	$300	$ 5,100.00
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -

Subtotal Cost:	$	6,035
Management Fee:	$	241
Total:	**$**	**6,276**

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:
Task #/Name: All Tasks
Complete: 0.0%

Page: 1 OF 4
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,967	$ -
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,607	$ -
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,574	$ -
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,235	$ -
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,339	$ -
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,574	$ -
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ 14,386	$ -
8. Total Site Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,534	$ -
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 929	$ -
10. Total Site Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,463	$ -

Program Manager (Engineer) _____ Date: _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:
Task #/Name: Task 1 - Work Plan Development
Complete: 0.0%

Page: 2 OF 4
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,600	$ 1,600
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,665	$ 2,665
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,265	$ 4,265
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8. Total Task Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,355	$ 4,355
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 213	$ 213
10. Total Task Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,568	$ 4,568

Program Manager (Engineer) _____ Date: _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:
Task #/Name: Task 2 - Vapor Intrusion Evaluation
Complete: 0.0%

Page: 3 OF 4
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,371	$ 3,371
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,616	$ 5,616
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,987	$ 8,987
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,235	$ 1,235
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,159	$ 1,159
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,394	$ 2,394
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ 14,386	$ 14,386
8. Total Task Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 25,768	$ 25,768
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 449	$ 449
10. Total Task Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 26,217	$ 26,217

Program Manager (Engineer) _____ Date: _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:
Task #/Name: Task 3 - Reporting
Complete: 0.0%

Page: 4 OF 4
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,996	$ 1,996
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,326	$ 3,326
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,322	$ 5,322
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8. Total Task Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,412	$ 5,412
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 266	$ 266
10. Total Task Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,678	$ 5,678

Program Manager (Engineer) _____ Date: _____

Schedule 2.11(g) - Supplemental
COST CONTROL REPORT FOR SUBCONTRACTS

Engineer: Mactec Engineering and Consultin
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Vapor Intrusion Evaluation

Page 1 of 1
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Subcontract Name	A Subcontract Costs Claimed This Application Incl. Resubmittals	B Subcontract Costs Approved For Payment on Previous Applications	C Total Subcontract Costs To Date (A plus B)	D Subcontract Approved Budget	E Management Fee Budget	F Management Fee Paid	G Total Costs To Date (C plus F)
			$ -	$ -	$ -		$ -
			$ -	$ -	$ -		$ -
			$ -	$ -	$ -		$ -
ADT			$ -	$ 8,110.00	$ -		$ -
Air Toxics			$ -	$ 6,035.00	$ 241.40		$ -
			$ -	$ -	$ -		$ -
			$ -	$ -	$ -		$ -
			$ -	$ -	$ -		$ -
TOTALS	$ -	$ -	$ -	$ 14,145.00	$ 241.40	$ -	$ -

Project Manager: _____ Date: _____

NOTES:
(1) Costs listed in Columns A, B, C & D do not include any management fee costs.
(2) Management fee is applicable to only properly procured, satisfactorily completed, unit price subcontracts over $10,000.
(3) Line 11, Column G should equal Line 7 (Subcontractors), Column D of Summary Cost Control Report.

SCHEDULE 2.11(h)
MONTHLY COST CONTROL REPORT
SUMMARY OF LABOR HOURS
Number of Direct Labor Hours Expended to Date/Estimated Number of Direct Labor Hours to Completion

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Becker Manufacturing
Work Assignment Number:

Date Prepared: 01/23/07
Billing Period:
Invoice #:

NSPE Labor Classification	IX Exp/Est*		VIII Exp/Est		VII Exp/Est		VI Exp/Est		V Exp/Est		IV Exp/Est		III Exp/Est		II Exp/Est		I Exp/Est		Total No. of Direct Labor Hours Exp/Est	
Task 1 - Work Plan Development	0.0	1	0.0	0	0.0	0	0.0	0	0.0	32	0.0	3	0.0	1	0.0	0	0.0	8	0.0	45
Task 2 - Vapor Intrusion Evaluation	0.0	2	0.0	0	0.0	0	0.0	0	0.0	36	0.0	0	0.0	62	0.0	3	0.0	2	0.0	105
Task 3 - Reporting	0.0	1	0.0	0	0.0	0	0.0	0	0.0	34	0.0	2	0.0	12	0.0	2	0.0	8	0.0	59
Task 4 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 5 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 6 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 7 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 8 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total Hours	0.0	4	0.0	0	0.0	0	0.0	0	0.0	102	0.0	5	0.0	75	0.0	5	0.0	18	0.0	208

* Expended/Estimated