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9/30/94

SITE ASSESSMENT REPORT
FOR
BUSH SITE
SPENCER TOWNSHIP, LUCAS COUNTY, OHIO
TDD # T05-9404-018
PAN # EOH1029SAA
DOCUMENT CONTROL # TAT-05-25-04092

I.1

SEPTEMBER 30, 1994

Prepared For:
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U.S. EPA Region V

Contract No.: 68-WO-0037

Project Manager: Richard C. Caldwell Date: 9-30-94
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1.0 INTRODUCTION

On April 14, 1994, the United States Environmental Protection Agency (U.S. EPA) tasked the Ecology & Environment, Inc. (E & E), Technical Assistance Team (TAT), to perform a site assessment at the Bush Site which included: preparing and implementing a site safety plan; compiling available information; conducting a site inspection; conducting air monitoring, as appropriate; preparing and implementing a sampling plan, if requested by the On-Scene Coordinator (OSC); providing verbal briefings to the OSC, as necessary; documenting on-site activities; providing photodocumentation; developing alternative removal approaches with cost estimates, if requested by the OSC; and assisting with preparation of information for the Action Memorandum, if requested by the OSC, to evaluate the site's threat to human health and the environment based on Title 40 Code of Federal Regulations (CFR) 300.415, National Contingency Plan (NCP). The tasks were to be completed under Technical Direction Document (TDD) Number T05-9404-018. The TAT members performing the site assessment were Richard Caldwell, Sandra Basham and David Iacovone.

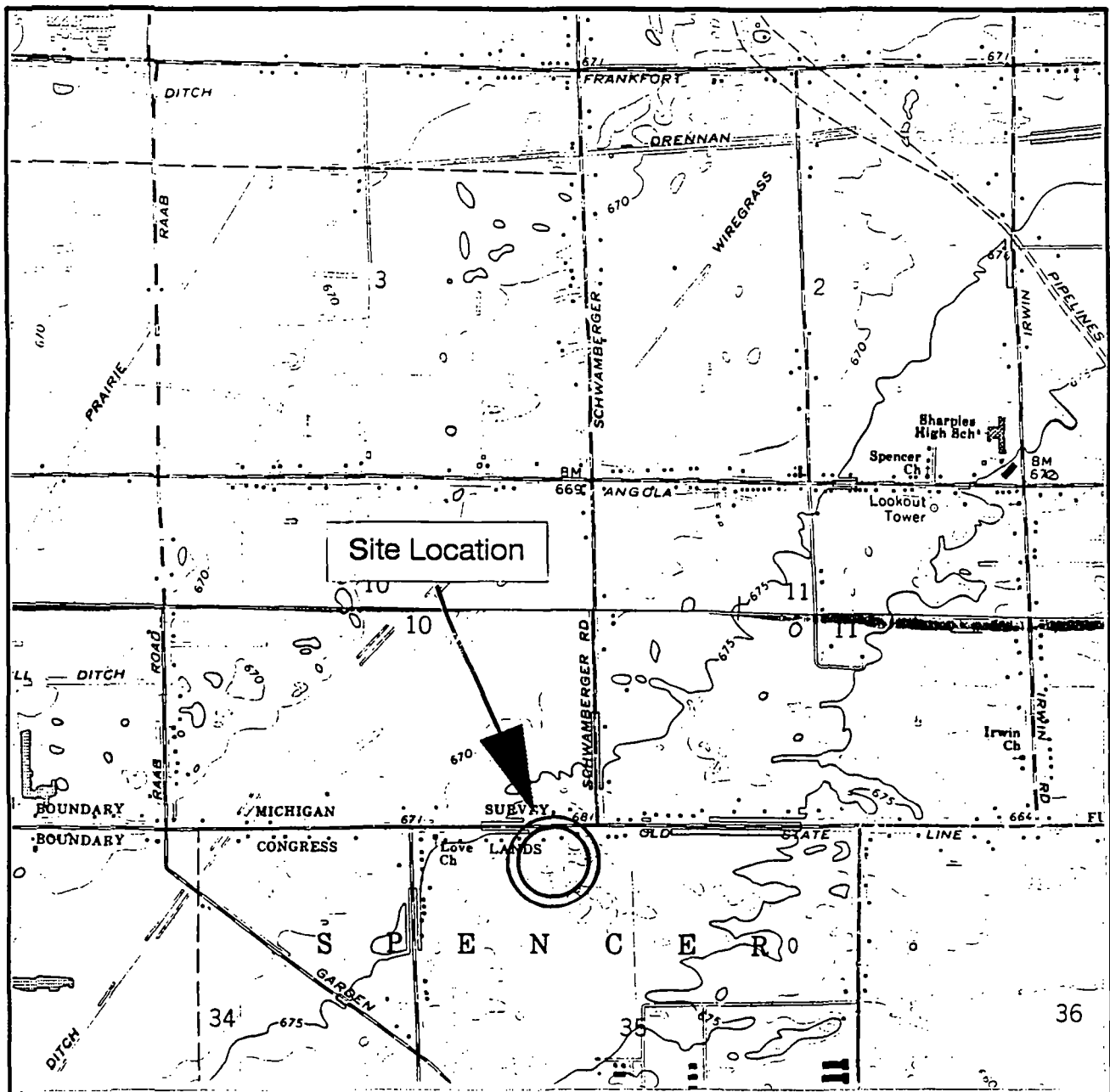
2.0 BACKGROUND

2.1 Site Description

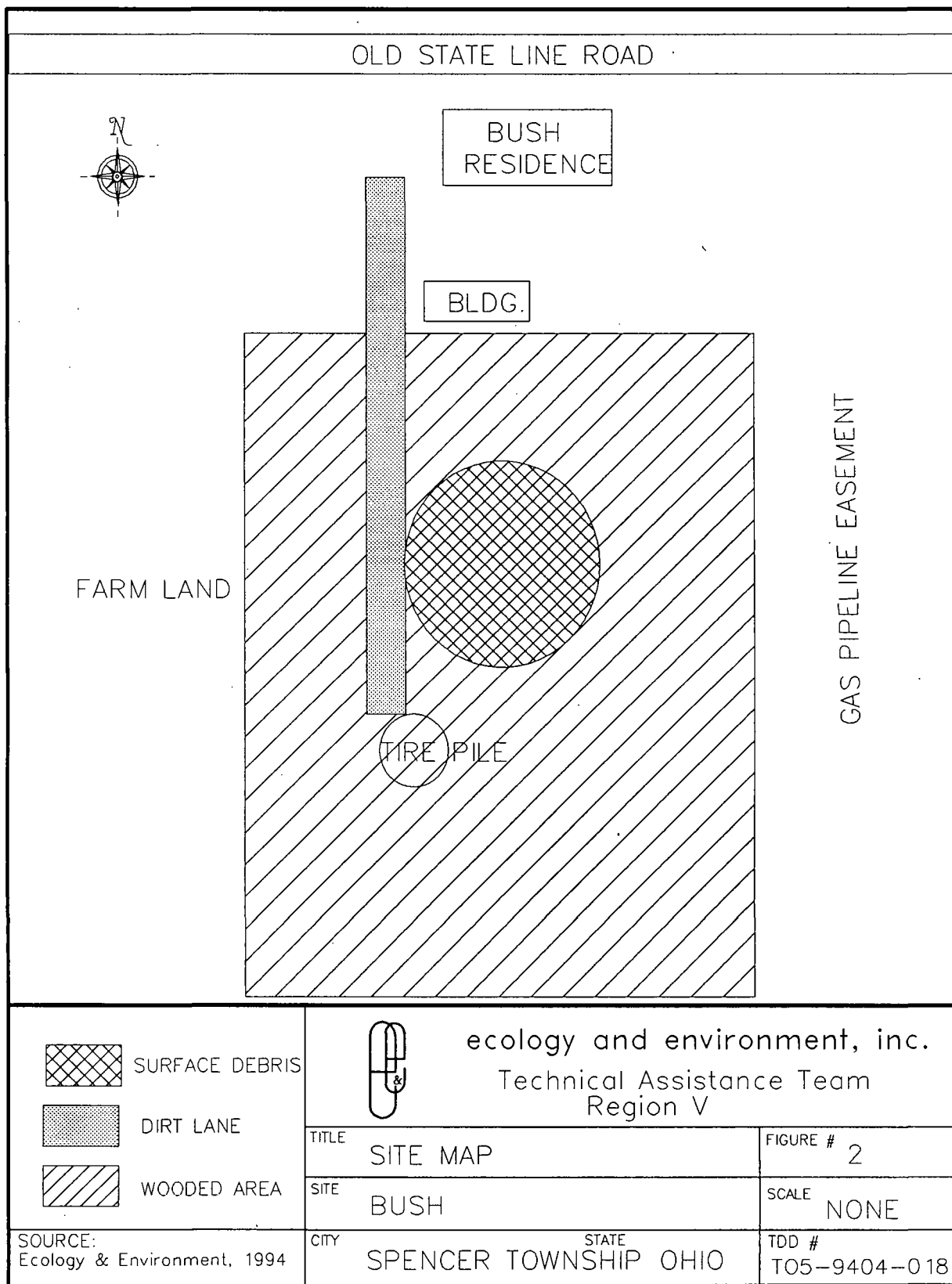
The Bush site is located at 10839 Old State Line Road, Spencer Township, Lucas County, Ohio (Figure 1). The property is situated approximately 100 yards west of Schwamberger Road and on the south side of Old State Line Road. The site is approximately ten acres in size and is in a predominately rural area. The site is bordered to the north by Old State Line Road, with open farm/rural areas bordering the south and west sides. To the east, is an open area that is used as an easement for a gas pipeline (Figure 2).

The site has very flat topography. The northern one-fifth of the site is open and contains the Bush residence and associated out buildings. The site, as it continues south, becomes heavily vegetated with secondary scrub and trees.

According to the Ohio Environmental Protection Agency (OEPA), bedrock in the area of the site is composed of a sequence of carbonate rocks varying in thickness from 350 to 850 feet. The bedrock is overlain by layers of relatively impermeable glacial drift up to 130 feet thick. The glacial drift is covered by variable thicknesses of beach sand deposits (Oak Openings Sand). The sand is up to twenty feet thick and is characterized by a relatively high permeability. The flat topography of the area coupled with the poor drainage characteristics of the underlying strata, cause water tables to be elevated. Generally, water can



<p>SPENCER TOWNSHIP</p>	<p>ecology and environment, inc. Technical Assistance Team Region V</p>		
<p>SOURCE/DATE USGS 7.5 MINUTE SERIES WHITEHOUSE, OHIO, QUADRANGLE</p>	<p>TITLE SITE LOCATION</p>	<p>FIGURE # 1</p>	
	<p>SITE BUSH</p>	<p>SCALE 1:24,000</p>	
	<p>CITY SPENCER TOWNSHIP</p>	<p>TDD # T05-9404-018</p>	



be encountered between one to three feet below the ground surface. As a result, residential wells in the area consist of mainly shallow point wells. Since no municipal water lines exist in the area, residents rely on groundwater as a main source of potable water.

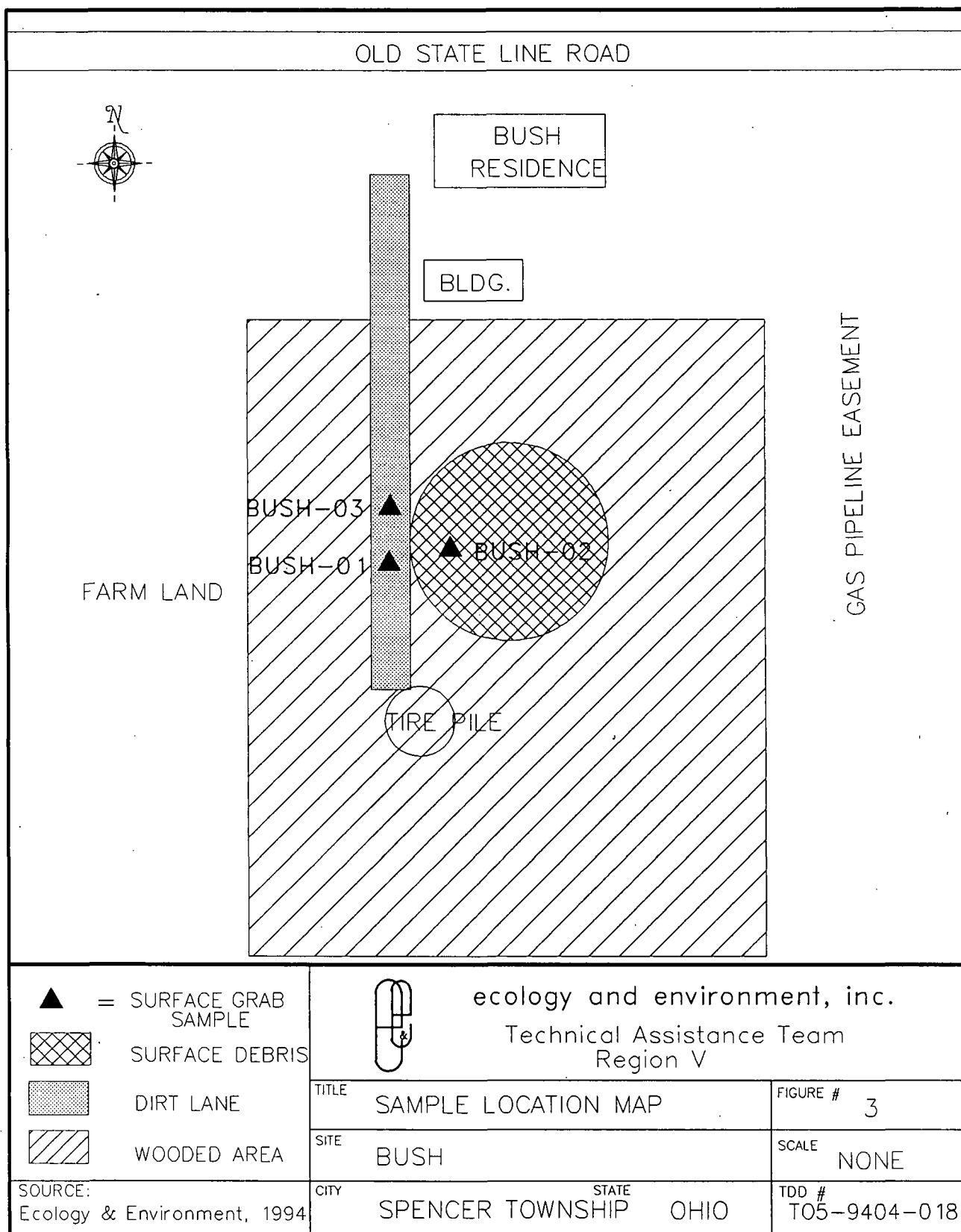
2.2 Site History

The Bush site was discovered by OEPA during a removal action undertaken at an adjacent site. The OEPA noted several hundred 55-gallon drums containing metal shavings. Also observed were numerous 5-gallon containers labeled "Smoothex - Poison, for use with copper cyanide metal plating solution only." During an interview with Mrs. Bush by OEPA, she stated that her husband (deceased) used to "clean up for places," but did not recall which businesses or individuals employed him. Samples of potable well water taken from the Bush residence by OEPA on January 22, 1992, indicated the presence of methylene chloride at 31 parts per billion (ppb).

3.0 SITE ACTIVITIES

On April 22, 1994, the TAT, U.S. EPA OSC Jason El-Zein, and representatives from OEPA conducted a preliminary investigation of the site. Upon arrival, it was noted that security was nonexistent and access was unrestricted. During the investigation, the OSC and TAT observed a heavily wooded area south of the Bush residence. A dirt lane originating at the Bush residence ran south into the woods and led to a concentrated area of metal and surface debris. Debris included numerous rusted and decayed 55-gallon drums, 5-gallon containers, and hundreds of drum lids, as well as an assortment of discarded household appliances. There were no 55-gallon drums observed with legible writing or labels and it was apparent that the drums had been exposed to the elements for a considerable period of time. A large majority of the 55-gallon drums had contained or did contain what appeared to be some type of metal turnings. Drum lids labeled "Sodium Cyanide Egg", and "Potassium Cyanide", as well as five-gallon containers labeled "Chromic Acid" and "Smoothex - Poison, for use with copper cyanide metal plating solution only" were identified on site. The lane that allowed vehicular access to the surface debris, was noted to have two areas along its length that contained some type of deposited solid, granular material. South of the metallic surface debris area was a segregated pile of discarded automobile tires.

On May 24, 1994, the TAT returned to the site to conduct a sampling mission. The sampling team donned Level C personal protective equipment (PPE), and collected three samples (Bush-01, Bush-02, and Bush-03). Sample locations are shown in Figure 3.



Sample BUSH-01 was collected from a grey opaque solid that was lying on the dirt lane west of the surface debris. No photoionization detector (PID) readings above background were noted during ambient air monitoring of the breathing zone or direct monitoring of the materials being sampled. Sample BUSH-02 was collected from one of the numerous "metal turnings" piles located on site. Sample BUSH-03 was collected from a brown opaque solid laying in the dirt lane west of the surface debris.

Samples were sent to National Environmental Testing, Inc. (NET), for analysis upon completion of the sampling activity and associated paperwork.

4.0 ANALYTICAL RESULTS

Samples collected by the TAT at the Bush site were taken in accordance with all relevant Office of Solid Waste and Emergency Response (OSWER) directives regarding the collection of waste samples. The samples were collected on May 24, 1994, and delivered to the laboratory on May 26, 1994. The analyses were performed by National Environmental Testing Laboratories, Auburn Hills, Michigan, under analytical TDD Number T05-9404-811. All analytical results of interest are presented in Table 1.

Sample BUSH-01 was a grey solid collected from waste found on the surface of the site. The sample was analyzed for total Resource Conservation and Recovery Act (RCRA)-listed metals and total cyanide. The sample contained elevated concentrations of barium (260 parts per million (ppm)), chromium (630 ppm), lead (250 ppm), and total cyanide (180 ppm). The Toxicity Characteristic Leachate Procedure (TCLP) was performed on the sample and the leachate was analyzed for these metals. The concentrations of the target metals in the TCLP leachate were below regulatory limits. Reactive cyanide analysis was also performed on the sample and the sample concentrations did not exceed the regulatory limits.

Sample BUSH-02 was a brown solid material containing metal turnings collected from waste found on the surface of the site. The sample was analyzed for total RCRA-listed metals, volatile organic compounds, and total cyanide. The sample contained elevated concentrations of arsenic (45 ppm), chromium (2,000 ppm), and lead (990 ppm). The sample also contained traces of acetone (280 ppb), methyl ethyl ketone (130 ppb), and toluene (11 ppb). The TCLP was performed on the sample and the leachate was analyzed for these metals. The concentrations of the target metals in the TCLP leachate were below regulatory limits.

Sample BUSH-03 was a brown opaque solid collected from waste found on the surface of the site. The sample was analyzed for

Table 1
Selected Analytical Results
Bush Site
Spencer Township, Lucas County, Ohio
May 24, 1994

Parameter	BUSH-01	BUSH-02	BUSH-03
Arsenic	N.D.	45 ppm	11 ppm
Barium	260 ppm	N.D.	16 ppm
Chromium	630 ppm	2000 ppm	29 ppm
Lead	250 ppm	990 ppm	N.D.
Selenium	N.D.	N.D.	16 ppm
Total Cyanide	180 ppm	N.D.	N.D.
Acetone	N.A.	280 ppb	N.A.
Methyl Ethyl Ketone	N.A.	130 ppb	N.A.
Toluene	N.A.	11 ppb	N.A.

Source: National Environmental Testing, Inc., Auburn Hills, Michigan.

N.D. Not Detected Above Background Concentrations

N.A. Not Analyzed

total RCRA-listed metals and total cyanide. The sample contained elevated concentrations of arsenic (11 ppm), barium (16 ppm), chromium (29 ppm), and selenium (16 ppm). The TCLP was performed on the sample and the leachate was analyzed for these metals. The concentrations of the target metals in the TCLP leachate were below regulatory limits.

The analytical results, Quality Assurance/Quality Control (QA/QC) memorandums, and data qualification information can be reviewed in Appendix A.

5.0 DISCUSSION OF POTENTIAL THREATS

The site assessment at the Bush site was conducted to evaluate the threat to public health and the environment posed by the imminent potential for release of hazardous substances from the site.

The NCP provides specific criteria for evaluation of a threat and the appropriateness of a removal action in 40 CFR Section 300.415, Paragraph (b) (2), Subsections (i) through (viii). Observations documented during this site assessment apply to subsections i, ii, iii, iv, and v:

- (i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

Hazardous substances listed in 40 CFR part 302, were identified in the samples collected from wastes found on the soil surface at the site. The wastes were collected from areas where 55-gallon drums and 5-gallon pails were located. Many of the containers were labeled with warnings that they contained cyanide, chromium, and other electroplating solution additives. A strong potential for exposure to the hazardous substances exists because the drums and the site are not secured from the local human or animal population. In addition, the waste is located on a residential property.

- (ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

The OEPA reported that site surface soils are sandy and very permeable. These sands are supported by relatively impermeable glacial till hundreds of feet thick. These conditions create a groundwater table that is often within 1 to 3 feet of the surface. Electroplating additives and wastes are inherently soluble by nature. Hazardous substances that are released from the containers and are spilled on the ground surface have the potential to solubilize and carry the hazardous substances through the permeable sands and into the shallow water table.

Because the underlying glacial till is so thick, local residents use shallow point wells that draw from the shallow water table and use this groundwater as their source of potable water.

- (iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

Hazardous substances have been identified in released wastes on the surface of the site. Drums are exposed to the elements and to the seasonal freeze/thaw cycles that routinely occur in northwest Ohio. Containers at the site that have not released their contents are in poor condition and will continue to deteriorate and eventually release their contents to the ground.

- (iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

The samples collected from wastes on site contained hazardous substances. Loose solidified wastes have potentially impacted surface soils, which are free to migrate from the site via transport by wind or water erosion.

- (v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

Precipitation may cause contaminant migration by striking loose wastes that have been released from drums. This contaminant migration may take the form of physical transport such as erosion, or may also result in contaminants entering into solution and ultimately migrate to the shallow unconfined aquifer. Any contaminant migration at this site would potentially spread contamination to currently clean areas on and off this site. In addition, dry conditions and seasonally high winds can promote the airborne transport of surface contaminants and contaminated soils.

6.0 SUMMARY

In summary, potential hazards at the Bush site include:

- Hazardous materials in or at the ground surface with the potential for migrating to the shallow groundwater, which is used by local residents.
- Lack of security/fencing to deny access to humans, animals and wildlife.

- Potable well water contaminated with methylene chloride as reported by OEPA.

Observations documented during the site assessment indicate that the conditions at the Bush site constitute an imminent and substantial endangerment to public health and welfare. This conclusion is based upon observations by the OSC and the TAT, as well as investigative reports from state and city officials as evaluated against the criteria set forth in the NCP.

A



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M E M O R A N D U M

DATE: August 11, 1994

TO: Richard L. Caldwell, Project Manager, E & E, Detroit, MI

FROM: David J. Iacovone, TAT-Chemist, E & E, Detroit, MI *DJI*

THRU: Sandra L. Basham, ATATL, E & E, Detroit, MI *SLB*

SUBJ: Volatile Organic Data Quality Assurance Review, Bush Site, Swanton, Lucas County, Ohio.

REF: Analytical TDD: T05-9404-811 Project TDD: T05-9404-018
Analytical PAN: EOH1029AAA Project PAN: EOH1029SAA

The data quality assurance review of one grab soil sample collected from the Bush Site in Swanton, Lucas County, Ohio, has been completed. Analysis for Volatile Organic compounds (SW846, method 8260) was performed by National Environmental Testing, Inc. (NET), of Auburn Hills, Michigan. The samples were collected by the TAT.

The sample was numbered BUSH-02, corresponding to laboratory number 151216.

Data Qualifications

I Holding Time: Acceptable

The sample was collected on May 24, 1994, and analyzed on June 4, 1994, within the allowable holding time of 14 days for soil samples.

II GC/MS Tuning: Acceptable

A bromofluorobenzene (BFB) standard was prepared and analyzed within twelve hours of the sample on the instrument used. All OSWER Directive 9360.4-01 ion abundance criteria requirements were met.

III Initial and Continuing Calibration Verification: Acceptable

Initial calibration was performed on June 4, 1994. All

compounds had average response factors greater than zero and relative response factors of at least 0.05. All percent relative standard deviations (%RSDs) were \leq 30%.

A continuing calibration check was performed on June 4, 1994. All percent differences (%D) were \leq 25%.

IV Internal Standards: Acceptable

All internal standard areas were within the acceptable range of -50% to +100% of the associated standard. All internal standard retention times did not vary by more than 30 seconds.

V Matrix Spike/Matrix Spike Duplicate: Acceptable

A matrix spike (MS) and matrix spike duplicate (MSD) were prepared and analyzed along with the sample. The percent recoveries were all within laboratory control limits.

VI Method Blank: Acceptable

A method blank was prepared and analyzed along with the sample. There were no analytes of interest present in the blank at concentrations above the reported detection limit.

VII Compound Identification: Acceptable

During examination of the data, the following information was verified:

- 1) the relative retention time (RRT) of reported compounds is within 0.06 RRT units of the standard RRT;
- 2) all ions present in the standard mass spectrum at a relative intensity greater than 10% are also present in the sample mass spectrum;
- 3) all ions present in the sample, but not present in the standard, are accounted for; and,
- 4) the relative intensities of the ions specified above as present in the sample at a relative intensity greater than 10% in the standard, agree within 20% between the sample and the standard spectra.

The compounds, for which there are positive results, were identified correctly.

VIII Compound Quantitation and Reported Detection Limits:
Acceptable

The reported values were correctly adjusted to reflect all dilutions, concentrations, splits, cleanup procedures, dry weight factors, and any other adjustments that have not been accounted for by the method.

IX Overall Assessment of Data for Use:

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures, Section 4.0, BNAs by GC/MS Analysis.

Based upon the information provided, the data are acceptable for use as reported.



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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
12251 Universal
Taylor, MI 48180

06/16/1994

Job No.: 94.03165
Sample No.: 151216

Project #ZT-2054
T05-9404-811

Sample Description: Bush-02 05/24

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Unit	Date Prepared	Date Analyzed	Lab Tech.	Methodology	Note
VOLATILE COMPOUNDS - HSL							
Acetone	280	ug/kg		06/04/1994	pmc	8260 (1)	
Benzene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Bromodichloromethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Bromoform	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Bromomethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Carbon disulfide	<100	ug/kg		06/04/1994	pmc	8260 (1)	
Carbon tetrachloride	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Chlorobenzene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Chloroethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
2-Chloroethyl vinyl ether	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Chloroform	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Chloromethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Dibromochloromethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
1,1-Dichloroethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
1,2-Dichloroethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
1,1-Dichloroethene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
cis-1,2-Dichloroethene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
trans-1,2-Dichloroethene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
1,2-Dichloropropane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
cis-1,3-Dichloropropene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
trans-1,3-Dichloropropene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Ethylbenzene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
2-Hexanone	<100	ug/kg		06/04/1994	pmc	8260 (1)	
Methyl ethyl ketone	130	ug/kg		06/04/1994	pmc	8260 (1)	
Methyl isobutyl ketone	<100	ug/kg		06/04/1994	pmc	8260 (1)	
Methylene chloride	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Styrene	<10	ug/kg		06/04/1994	pmc	8260 (1)	

Bruce E. Brown
Project Manager





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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
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Taylor, MI 48180

06/16/1994

Job No.: 94.03165
Sample No.: 151216

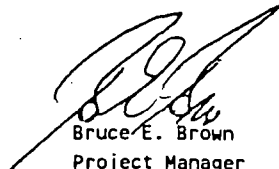
Project #ZT-2054
T05-9404-811

Sample Description: Bush-02 05/24

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Unit	Date Prepared	Date Analyzed	Lab Tech.	Methodology	Note
1,1,2,2-Tetrachloroethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Tetrachloroethene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Toluene	11	ug/kg		06/04/1994	pmc	8260 (1)	
1,1,1-Trichloroethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
1,1,2-Trichloroethane	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Trichloroethene	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Vinyl acetate	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Vinyl chloride	<10	ug/kg		06/04/1994	pmc	8260 (1)	
Xylenes	<30	ug/kg		06/04/1994	pmc	8260 (1)	


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DATE: August 11, 1994

TO: Richard L. Caldwell, Project Manager, E & E, Detroit, MI

FROM: David J. Iacovone, TAT-Chemist, E & E, Detroit, MI *DJA*

THRU: Sandra L. Basham, ATATL, E & E, Detroit, MI *SB*

SUBJ: Total RCRA Metals and Total and Reactive Cyanide Data Quality Assurance Review, Bush Site, Swanton, Lucas County, Ohio.

REF: Analytical TDD: T05-9404-811 Project TDD: T05-9404-018
Analytical PAN: EOH1029AAA Project PAN: EOH1029SAA

The data quality assurance review of three composite solid samples collected from the Bush Site in Swanton, Lucas County, Ohio, has been completed. Analyses for Total RCRA Metals (SW846, methods 6010, 7061, 7471, 7741) and Total and Reactive Cyanide (SW846, methods 9010 and 7.3.3.2) were performed by National Environmental Testing, Inc. (NET), of Auburn Hills, Michigan. The samples were collected by the TAT.

The samples were numbered BUSH-01, BUSH-02, and BUSH-03, corresponding to laboratory numbers 151214, 151216, and 151215, respectively.

Data Qualifications

I Sample Holding Time: Acceptable

The samples were collected on May 24, 1994, prepared on May 31, 1994, and analyzed on June 1-2, 1994, within the OSWER Directive 9360.4-01 allowable holding times of 28 days for mercury, 14 days for cyanide, and 6 months for the remaining metals, for solid samples.

II Initial and Continuing Calibration Verification: Acceptable

The initial and continuing calibration values are within the OSWER Directive 9360.4-01 allowable control limits of 80-

120% for mercury, 85-115% for cyanide, and 90-110% for the remaining metals, of the mean value.

III Method Blanks: Acceptable

A method blank was prepared and analyzed along with the samples. There were no analytes of interest present in the blank at concentrations greater than the reported detection limits.

IV Interference Check Sample Analysis: Acceptable

All ICP Interference Check Sample (ICS) results were within the OSWER Directive 9360.4-01 allowable control limits of $\pm 20\%$ of the mean value.

V Matrix Spike/Matrix Spike Duplicate: Qualified

A matrix spike (MS) and matrix spike duplicate (MSD) were prepared and analyzed along with the samples. The percent recoveries were all within laboratory control limits except for silver and cyanide. All positive results for silver and cyanide have been qualified as estimates (J).

VI Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures, Section 3.0, Metallic Inorganic Parameters.

Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limits or quality control criteria were not met.



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ANALYTICAL REPORT

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06/16/1994

Job No.: 94.03163
Sample No.: 151214

Project #ZT-2054
T05-9404-811

Sample Description: Bush-01 05/24

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Unit	Date Prepared	Date Analyzed	Lab Tech.	Methodology	Note
Cyanide, Total	180 J	mg/kg		06/02/1994	gmc	9010 (1)	
Solids, Total	91	%		06/06/1994	gmc	160.3 (3)	
NONAQUEOUS METALS			05/31/1994				
Arsenic	3.2	mg/kg	05/31/1994	06/02/1994	jbb	7061 (1)	
Barium	260	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Cadmium	2.9	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Chromium	630	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Lead	250	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Mercury	0.25	mg/kg	05/31/1994	06/01/1994	dle	7471 (1)	
Selenium	<0.8	mg/kg	05/31/1994	06/02/1994	jbb	7741 (1)	
Silver	2.0 J	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	


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ANALYTICAL REPORT

David Iacovone
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Taylor, MI 48180

06/16/1994

Job No.: 94.03165
Sample No.: 151216

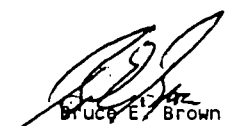
Project #ZT-2054
T05-9404-811

Sample Description: Bush-02 05/24

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Unit	Date Prepared	Date Analyzed	Lab Tech.	Methodology	Note
Cyanide, Total	<1.0	mg/kg		06/02/1994	gmc	9010 (1)	
Solids, Total	98	%		06/06/1994	gmc	160.3 (3)	
NONAQUEOUS METALS			05/31/1994				
Arsenic	45	mg/kg	05/31/1994	06/02/1994	jbb	7061 (1)	
Barium	5.3	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Cadmium	<0.2	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Chromium	2000	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Lead	990	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Mercury	<0.02	mg/kg	05/31/1994	06/01/1994	dlc	7471 (1)	
Selenium	<0.8	mg/kg	05/31/1994	06/02/1994	jbb	7741 (1)	
Silver	8.4 J	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	


BRUCE E. BROWN
Project Manager





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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
12251 Universal
Taylor, MI 48180

06/16/1994

Job No.: 94.03164
Sample No.: 151215

Project #ZT-2054
705-9404-811

Sample Description: Bush-03 05/24

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Unit	Date Prepared	Date Analyzed	Lab Tech.	Methodology	Note
Cyanide, Total	<1.0	mg/kg		06/02/1994	gmc	9010 (1)	
Solids, Total	99	%		06/06/1994	gmc	160.3 (3)	
NONAQUEOUS METALS							
Arsenic	11	mg/kg	05/31/1994	06/02/1994	jbb	7061 (1)	
Barium	16	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Cadmium	0.65	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Chromium	29	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Lead	21	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	
Mercury	<0.02	mg/kg	05/31/1994	06/01/1994	dlc	7471 (1)	
Selenium	16	mg/kg	05/31/1994	06/02/1994	jbb	7741 (1)	
Silver	0.97 J	mg/kg	05/31/1994	06/02/1994	jbb	6010 (1)	


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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
12251 Universal
Taylor, MI 48180

08/18/1994

Job No.: 94.05013
Sample No.: 156224

Project #ZT-2054
T05-9404-811
Additional Work for NET Job #94.03163

Sample Description: Bush-01 (#151214) 05/24

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Unit	Date Prepared	Date Analyzed	Lab Tech.	Methodology	Note
Reactive Cyanide	<1.0	mg/kg		08/17/1994	cab	Sec 7.3.3.1 (1)	

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AUG 22 1994

TAT MI-SAT

Bruce E. Brown
Project Manager





ecology and environment, inc.

12251 UNIVERSAL, TAYLOR, MICHIGAN 48180, TEL. (313) 946-0900
International Specialists in the Environment

M E M O R A N D U M

DATE: August 11, 1994

TO: Richard L. Caldwell, Project Manager, E & E, Detroit, MI

FROM: David J. Iacovone, TAT-Chemist, E & E, Detroit, MI *DJI*

THRU: Sandra L. Basham, ATATL, E & E, Detroit, MI *SLB*

SUBJ: Toxicity Characteristic Leachate Procedure (TCLP) RCRA Metals Data Quality Assurance Review, Bush Site, Swanton, Lucas County, Ohio.

REF: Analytical TDD: T05-9404-811 Project TDD: T05-9404-018
Analytical PAN: EOH1029AAA Project PAN: EOH1029SAA

The data quality assurance review of three composite solid samples collected from the Bush Site in Swanton, Lucas County, Ohio, has been completed. Analysis for TCLP RCRA Metals (SW846, methods 1311, 6010, and 7471) was performed by National Environmental Testing, Inc. (NET), of Auburn Hills, Michigan. The samples were collected by the TAT.

The samples were numbered BUSH-01, BUSH-02, and BUSH-03, corresponding to laboratory numbers 151214, 151216, and 151215, respectively.

Data Qualifications

I Sample Holding Time: Acceptable

The samples were collected on May 24, 1994, and were analyzed for Total RCRA Metals on June 1-2, 1994. Those metals which exceeded the regulatory limits for total metals were analyzed via the TCLP method on June 14-15, 1994, within the allowable holding time.

II Initial and Continuing Calibration Verification: Acceptable

The initial and continuing calibration values are within the OSWER Directive 9360.4-01 allowable control limits of 80-120% for mercury, and 90-110% for the remaining metals, of the mean value.

III Method Blanks: Acceptable

A method blank was prepared and analyzed along with the samples. There were no analytes of interest present in the blank at concentrations greater than the reported detection limits.

IV Interference Check Sample Analysis: Acceptable

All ICP Interference Check Sample (ICS) results were within the OSWER Directive 9360.4-01 control limits of $\pm 20\%$ of the mean value. An ICS was analyzed at the beginning and end of each run.

V Matrix Spike/Matrix Spike Duplicate: No action required

A matrix (MS) and matrix spike duplicate (MSD) were prepared and analyzed along with the samples. The percent recoveries were all within laboratory control limits, except silver. There were no positive TCLP results for silver, therefore, no action is required.

VI Overall Assessment of Date for Use

The overall usefulness of the data is based on the criteria outlined in OSWER Directive 9360.4-01 (April 1990), Data Validation Procedures, Section 3.0, Metallic Inorganic Parameters.

Based upon the information provided, the data are acceptable for use as reported.



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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
12251 Universal
Taylor, MI 48180

06/16/1994

Job No.: 94.03163
Sample No.: 151214

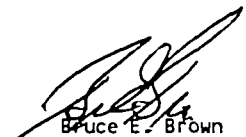
Project #ZT-2054
T05-9404-811
Sample Description: Bush-01 05/24

Physical Description: gray solids

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Regulatory Limit	Unit	Date Analyzed	Lab Tech.	Methodology
METALS - TCLP						
Barium	1.0	100.0	mg/L	06/15/1994	jbb	6010 (1)
Cadmium	0.02	1.0	mg/L	06/15/1994	jbb	6010 (1)
Chromium	<0.02	5.0	mg/L	06/15/1994	jbb	6010 (1)
Lead	0.25	5.0	mg/L	06/15/1994	jbb	6010 (1)
Mercury	<0.0005	0.2	mg/L	06/14/1994	dlc	7471 (1)


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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
12251 Universal
Taylor, MI 48180

06/16/1994

Job No.: 94.03164
Sample No.: 151215

Project #ZT-2054
T05-9404-811
Sample Description: Bush-03 05/24

Physical Description: brown solids

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Regulatory Limit	Unit	Date Analyzed	Lab Tech.	Methodology
METALS - TCLP						
Arsenic	<0.20	5.0	mg/L	06/15/1994	jbb	6010 (1)
Chromium	<0.02	5.0	mg/L	06/15/1994	jbb	6010 (1)
Lead	<0.05	5.0	mg/L	06/15/1994	jbb	6010 (1)
Selenium	<0.50	1.0	mg/L	06/15/1994	jbb	6010 (1)


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ANALYTICAL REPORT

David Iacovone
ECOLOGY & ENVIRONMENT INC
12251 Universal
Taylor, MI 48180

06/16/1994

Job No.: 94.03165
Sample No.: 151216

Project #ZT-2054
T05-9404-811
Sample Description: Bush-02 05/24

Physical Description: brownish-orange solids

Date Taken: 05/24/1994

Date Received: 05/26/1994

Parameter	Result	Regulatory Limit	Unit	Date Analyzed	Lab Tech.	Methodology
METALS - TCLP						
Arsenic	<0.20	5.0	mg/L	06/15/1994	jbb	6010 (1)
Chromium	0.05	5.0	mg/L	06/15/1994	jbb	6010 (1)
Lead	2.0	5.0	mg/L	06/15/1994	jbb	6010 (1)
Silver	<0.02	5.0	mg/L	06/15/1994	jbb	6010 (1)


Bruce E. Brown
Project Manager



B



Site
1
North
Campus Infinity
er: Basham

Date: 4-22-94 Subject:
View along site roadway at Bush
Site. Note residence in
background.



Site
2
West
Campus Infinity
er: Basham

Date: 4-22-94 Subject:
Typical surface debris at Bush
Site.



Site: Bush Site
 Photo No: 3
 Direction: West
 Camera: Olympus Infinity
 Photographer: Basham

Date: 4-22-94
 Typical surface
 scattered in woods
 Site.



Site: Bush Site
 Photo No: 4
 Direction: North
 Camera: Olympus Infinity
 Photographer: Basham

Date: 4-22-94
 Bush family residence
 background with
 scattered on the site



Site: Bush Site
 Photo No: 5
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Basham

Date: 4-22-94 Subject:
 Typical surface debris at Bush
 Site.



Site: Bush Site
 Photo No: 6
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Basham

Date: 4-22-94 Subject:
 Pile of tires in woods at Bush
 Site.



Site: Bush Site
 Photo No: 7
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Basham

Date: 4-22-94
 Subject: Chromic Acid container at Bush Site.



Site: Bush Site
 Photo No: 8
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Caldwell

Date: 5-24-94
 Subject: Drum lid labeled "sodium cyanide egg" in pile of hundreds of lids and drums.



Site: Bush Site
 Photo No: 9
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Caldwell

Date: 5-24-99 Subject:
 Drum lid labeled "potassium
 cyanide" in pile of hundreds of
 lids and drums.



Site: Bush Site
 Photo No: 10
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Caldwell

Date: 5-24-94 Subject:
 Two plating chemical containers
 at the Bush Site.



Site: Bush Site
Photo No: 11
Direction: West
Camera: Olympus Infinity
Photographer: Caldwell

Date: 5-24-94
Subject:
Additional small containers at
the Bush Site.



Site: Bush Site
Photo No: 12
Direction: West
Camera: Olympus Infinity
Photographer: Caldwell

Date: 5-24-94
Subject:
Sampling team collects Bush-01.
Sample described as gray opaque
solid.



Site: Bush Site
Photo No: 13
Direction: North
Camera: Olympus Infinity
Photographer: Caldwell

Date: 5-24-94 Subject:
Sampling team homogenizing
sample labeled Bush-01.



Site: Bush Site
Photo No: 14
Direction: Down
Camera: Olympus Infinity
Photographer: Caldwell

Date: 5-24-94 Subject:
Sample team collects sample
Bush-02, described as brown
opaque solid with metal
turnings.



Site: Bush Site
 Photo No: 15
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Caldwell

Date: 5-24-94
 Close-up of Bush-02 being collected.

Subject:



Site: Bush Site
 Photo No: 16
 Direction: Down
 Camera: Olympus Infinity
 Photographer: Caldwell

Date: 5-24-94
 Sample team collects Bush-03.
 Sample described as brown opaque solid.

Subject: