159465

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III
Wheeling Office
303 Methodist Bldg. 11th & Chapline Streets
Wheeling, West Virgina 26003

TO: Charles J. Walters
Public Health Advisor
ATSDR Region III

FROM: Marjorie Easton, On-Scene Coordinator ME
Western Response and Oil Enforcement Section
U.S. EPA - Region III, Wheeling, WV

SUBJECT: Data Package for ATSDR Review and Evaluation Regarding the Barefoot Sanitary Services Site Hollidaysburg, Blair County, Pennsylvania

DATE: November 13, 1990

I. Identifying Information

Site Name: Barefoot Sanitary Services Site

Site Address: Hollidaysburg, Pennsylvania

Site Type: An unpermitted disposal location for sewage, industrial sludges, and plating waste which is no longer in operation.

Contact person to call should OSC be unavailable:

Charles Fisher, Region III Technical Assistance Team
(304) 233-1610

Specific Concerns:

A. Does ATSDR recommend bottled water be used for residents whose potable water source are wells in the vicinity of the site and, if so, which residents are recommended to receive bottled water? Are the levels in the wells low enough that the site be referred to the Remedial Branch, providing the wells are monitored on a periodic basis and efforts are taken to control the source?

100006

B. Does ATSDR support removal activities at this site? Present options include excavation and disposal, onsite treatment, encapsulation, and capping.

C. Do conditions at the site warrant immediate access control?

II. Background

The Barefoot Sanitary Services Site was operated by George Barefoot and Richard Barefoot from 1960 to 1971 as a disposal facility for industrial and metal finishing wastes and untreated domestic sewage. The facility was unpermitted, and wastes were reportedly disposed of on the soil surface, in unlined lagoons, and in sinkholes leading into caverns. The site is currently inactive.

In 1966, the Pennsylvania Department of Health recommended that sewage and industrial wastes no longer be disposed of at this site. A Pennsylvania Department of Health investigation in 1967 revealed wastes deposited elevated levels of trivalent chromium and copper. As a result of the 1967 investigation, a Commonwealth official advised that Barefoot Sanitary Services be instructed that no industrial wastes were to be deposited on the ground or in sinkholes.

In January 1971, the Pennsylvania Department of Environmental Resources (PADER) sampled the site and obtained analytical results indicating excessive amounts of copper, total chromium, zinc, and lead. PADER sampled the site again in April 1971 and obtained high iron, manganese, copper, total chromium, zinc, and cadmium levels. The Pennsylvania Department of Health memorandum, "Re-Hydrogeologic and Soils Investigation," dated May 7, 1971, commented on the January 1971 PADER sampling results, saying, "These samples show concentrations that exceed drinking water standards which are the standards for discharge to groundwater." Commonwealth officials noted that surface water in contact with the wastes caused groundwater pollution and recommended that all wastes be removed from the surface, sinkholes, constructed impoundments, and test pits. Commonwealth officials also recommended disposal in a manner acceptable to PADER.

PADER filed an equity suit against the site owners in 1972. The suit ordered the ceasing of all disposal at Barefoot Sanitary Services and placing solid industrial wastes onsite into a special cell to maintain alkaline conditions and prevent the wastes from going into solution with groundwater. PADER also ordered trenches and backhoe pits in the woods to be filled with earth and lagoons to be drained and deep deposits of sludge to be removed and disked into the surface soil of nearby fields. PADER

performed site investigations to determine degree of compliance as of October 26, 1972. The investigations revealed that not all of the remedial actions stated in the Supplemental Decree were complied with. PADER noted partial compliance as of October 26, 1972, of Part C of Supplemental Decree. Some of the exposed sludge still needed to be scarified. PADER noted non compliance as of October 26, 1972, regarding Part D of Supplemental Decree. Approximately 24 inches of sludge deposits remained in the oil lagoon.

EPA's Field Investigation Team (FIT) inspected the site in 1989. The results of FIT soil sampling at the site revealed elevated levels of volatile organic compounds, metals, and cyanide.

EPA's Technical Assistance Team (TAT) sampled soils onsite and nearby residential water wells in August and October 1990 for volatile organics, pesticides and polychlorinated biphenyls (PCBs), metals, and cyanides. Analytical results for the August trip indicate elevated levels of 1,2-dichloroethene (total), trichloroethene, toluene, 4,4'-DDD, and metals in soils. Elevated levels of 1,1-dichloroethene, trichloroethene, and lead were detected in well water.

III. Substances Present

A Pennsylvania Department of Health investigation in 1967 revealed wastes deposited onsite contained up to 800 milligrams per liter (mg/l) of trivalent chromium and 10,000 mg/l of copper. Results of PADER's January 1971 sampling showed elevated concentrations of metals as high as 13.4 mg/l for copper, 19.5 mg/l for total chromium, 20.5 mg/l for zinc, and 0.88 mg/l for lead in the samples. Further sampling by PADER in April 1971 revealed metal concentrations as high as 670 mg/l for iron, 6.8 mg/l for manganese, 153 mg/l for copper, 73 mg/l for total chromium, 170 mg/l for zinc, and 3.2 mg/l for cadmium.

FIT's soil sampling results in 1989 revealed 650,000 micrograms per kilogram (ug/kg) of trichloroethene, 38,000 ug/kg of toluene, 230,000 ug/kg of xylenes, 11,200 milligrams per kilogram (mg/kg) of chromium, 10 mg/kg of cadmium, 3,340 mg/kg of lead, 9.5 mg/kg of mercury, 4,920 mg/kg of zinc, and 606 mg/kg of cyanide.

The results for TAT's August 1990 sampling trip were as high as 1,400,000 ug/kg for 1,2-dichloroethene (total), 43,000,000 ug/kg for trichloroethene, 1,200,000 ug/kg for toluene, and 100 ug/kg for 4,4'-DDD. Soil samples tested for metals showed some values greater than the high common range present in natural soils (according to "Hazardous Waste Land Treatment", U.S. EPA Office of Solid Waste and Emergency Response, April 1983). The

1`0008

metals detected include: antimony, cadmium, chromium, copper, lead, manganese, silver, zinc, and possibly mercury. Six of the soil samples exceeded the EPA lead advisory level of 500 mg/kg (see the attached "Inorganic Data Validation for the Barefoot Disposal Site," Table 3, List of Samples Exceeding the Lead Action Level, October 9, 1990).

One residential well (R-2) sampled by TAT contained levels as high as 13 micrograms per liter (ug/l) for 1,1-dichloroethene and 10 ug/l for trichloroethene. Sample R-21 contained 17.3 ug/l of lead, which is also of potential concern. A chart of TAT sampling results is attached.

IV. Geographic and Demographic Information

The Barefoot Sanitary Services Site is located on 44 acres of land on the top of Catfish Ridge in Hollidaysburg, Blair County, Pennsylvania. The site is forested and is surrounded by small, residential developments and farms. The closest residence is located approximately 0.3 miles to the south and is about 300 feet downgradient of the Barefoot Site. The town of Newry is 1.5 miles southwest of the site, the town of Duncansville is 1.5 miles northwest, and Hollidaysburg is 2 miles northeast of the site. Approximately 532 persons reside within a 1-mile radius of the site. Approximately 4,176 persons reside within a 2-mile radius (which includes downtown Hollidaysburg), and approximately 9,532 people reside within a 3-mile radius. The nearest school is 2.1 miles away. According to the FIT report on the site, two federally listed endangered birds are expected to be found as transient species in the area: the bald eagle (Haliaetus leucocephalus) and the peregrin falcon (Falco peregrinus). There is no critical habitat in the area listed for these species.

The Barefoot Sanitary Services Site is located within the Valley and Ridge geologic province. Site soils are silty and sandy loams that are moderately to rapidly drained. The FIT report estimates soil thickness at the site to vary from zero to six feet. The underlying bedrock, which is highly permeable, consists of limestones, shales, and sandstones that have been folded and heavily fractured. According to the FIT report, groundwater in the area is stored and transmitted primarily through the extensive fracture system, although solution channels within the limestone units may produce large quantities of water locally. The fractures cross formational or lithologic boundaries, so that all of the units are linked hydraulically. The FIT report says that groundwater flow is expected to be to the southeast, following the topography and dip of the bedding; however, preferential flow paths may exist within the carbonate bedrock due to solution features, which may deviate from the expected direction of groundwater flow.

The Kladder Reservoir, which supplies water to the Hollidaysburg Water System, lies 1.7 miles southeast of the site, although the reservoir is reportedly not within the watershed area of the site. The Duncansville Borough Water Department obtains water from a well located along Blairs Creek, 1.7 miles northwest of the site. Most of the residents of Newry obtain drinking water from private wells, although approximately 30 residents obtain water from the spring-fed R. C. Burket Reservoir, located 2 miles west of the site.

Surface drainage from the site flows north and south to Beaverdam Creek and the Frankstown Branch of the Juniata River. Beaverdam Creek is utilized as a cold-water fishery, and the Frankstown Branch is a stocked trout stream.

V. Relationship to the Nearby Community

Operations at Barefoot Sanitary Services reportedly ceased in 1971, so at the current time, there are no activities regularly conducted onsite. Access is unrestricted, however, and FIT reports seeing hunters onsite. Primary access to the site is via an unpaved road.

There are no records of local complaints about the site. Various agencies of the Commonwealth of Pennsylvania have been involved at the site since the 1960s. Their activities are described in the "Background" section of this package.

VI. Data on environmental pathways

Exposure to contaminants onsite is through direct contact at the site itself, through inhalation and ingestion of contaminated dust, and through ingestion of contaminated water. Surface water flow from the site could potentially contaminate nearby creeks and introduce contamination into the food chain.

Groundwater used for potable water is the exposure route of most concern. TAT sampled 25 private residential wells near the site and the sampling plan and map are attached. TAT also collected soil samples from the site at the surface and at a depth of one foot. The sampling plan and map for TAT soil sampling are also attached.

Attachments:

- History of Analytical Results from Barefoot Investigations
- "Drinking Water Regulations and Health Advisories", U.S. EPA Office of Drinking Water, April 1990.
- Sampling plans (3)
- Chain-of-Custody forms
- Analytical summary for Barefoot Disposal Site (Technical Assistance Team Sampling in August 1990)
- Organic and inorganic data validation for the Barefoot Disposal Site
- Highway and topographic site location maps
- Photographic documentation of site

History of Analytical Results from Barefoot Investigations

May 1967	State Officials	
Chemical	Result	
Chromium III	800	mg/l
Copper	10,000	mg/l

Jan 1971	State Officials	
Chemical	Result	
Chromium (total)	19.5	mg/l
Copper	13.4	mg/l
Lead	0.88	mg/l
Zinc	20.5	mg/l

Apr 1971	State Officials	
Chemical	Result	
Cadmium	3.2	mg/l
Chromium (total)	73	mg/l
Copper	153	mg/l
Iron	670	mg/l
Manganese	6.8	mg/l
Zinc	170	mg/l

Dec 1989	FIT	
Chemical	Result	
Trichloroethene	650,000	ug/kg
Toluene	38,000	ug/kg
Xylenes	230,000	ug/kg
Cadmium	10	mg/kg
Chromium	11,200	mg/kg
Lead	3,340	mg/kg
Mercury	9.5	mg/kg
Zinc	4,920	mg/kg
Cyanide	606	mg/kg

Aug 1990	Weston		
Chemical	Result		
SOIL			
4,4'-DDD	100	ug/kg	at the surface
1,2-Dichloroethene (total)	1,400,000	ug/kg	1 ft. below surface
Toluene	1,200,000	ug/kg	1 ft. below surface
Trichloroethene	43,000,000	ug/kg	1 ft. below surface
POTABLE WATER			
1,1-Dichloroethene	13	ug/l	
Trichloroethene	10	ug/l	
Lead	17.3	ug/l	

DRINKING WATER REGULATIONS

AND HEALTH ADVISORIES

By

Office of Drinking Water
U.S. Enivironmental Protection Agency
Washington, D.C.
(202)382-7571

SAFE DRINKING WATER HOTLINE
1-800-426-4791 (Toll-Free)
202-382-5533(Washington, D.C.)
Monday thru Friday, 8:30 AM to 4:30 PM EST

April 1990

LEGEND

Abbreviations column descriptions are:

NIPDWR - National Interim Primary Drinking Water Regulation. Interim enforceable drin water regulations first established under the Safe Drinking Water Act that protective of public health to the extent feasible.

MCLG - Maximum Contaminant Level Goal. A non-enforceable concentration of a drin water contaminant that is protective of adverse human health effects and allow adequate margin of safety.

MCL - Maximum Contaminant Level. Maximum permissible level of a contaminant in w which is delivered to any user of a public water system.

RfD - Reference Dose. An estimate of a daily exposure to the human population th likely to be without appreciable risk of deleterious effects over a lifetime.

DWEL - Drinking Water Equivalent Level. A lifetime exposure concentration protectiv adverse, non-cancer health effects, that assumes all of the exposure t contaminant is from a drinking water source.

(*) The codes for the Status Reg and Status HA columns are as follows:

F - final
D - draft
L - listed for regulation
P - proposed (Phase II draft proposal)
T - tentative (Phase V)

Other codes found in the table include the following:

NA - not applicable
PS - performance standard 0.5 NTU - 1.0 NTU
TT - treatment technique

** - No more than 5% of the samples may be positive. For systems collecting fe than 40 samples/month, no more than 1 sample may be positive.

*** - guidance

- Large discrepancies between Lifetime and Longer-term HA values may oc because of the Agency's conservative policies, especially with regard carcinogenicity, relative source contribution, and less than lifetime exposures chronic toxicity testing. These factors can result in a cumulative UF (uncerta factor) of 10 to 1000 when calculating a Lifetime HA.

DRINKING WATER STANDARDS AND HEALTH ADVISORIES

April 1990

Chemicals	Standards: Status Reg*	Standards: MRDLG (µg/l)	Standards: MCLG (µg/l)	Standards: MCL (µg/l)	Standards: Status HA*	Health Advisories: 10 kg Child: One-day µg/l	10 kg Child: Ten-day µg/l	10 kg Child: Longer-term µg/l	70 kg Adult: Longer-term µg/l	70 kg Adult: RfD µg/kg/day	70 kg Adult: DWEL µg/l	70 kg Adult: HA/Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
ORGANICS														
Acenaphthylene	-	-	-	-	-	-	-	-	-	60	-	-	-	-
Acifluorfen	-	-	-	-	F	2000	2000	100	400	13	400	-	100	B2
Acrylamide	P	-	zero	TT	F	1500	300	20	70	0.2	7	-	1	B2
Acrylonitrile	L	-	-	-	B	20	20	1	4	0.1	4	-	7	B1
Adipates (diethylhexyl)	T	-	500	500	-	-	-	-	-	700	20000	500	-	C
Alachlor	P	-	zero	2	F	100	100	-	-	10	400	4	40	B2
Aldicarb	P	-	10	10	F	10	10	10	10	1.3	40	10	-	D
Aldicarb sulfone	P	-	40	40	F	60	60	60	200	8.0	200	40	-	D
Aldicarb sulfoxide	P	-	10	10	F	10	10	10	40	1.3	40	10	-	D
Aldrin	-	-	-	-	S	0.3	0.3	0.3	0.0	0.00	0.0	-	0.2	B2
Alodrin	-	-	-	-	F	6000	6000	600	3000	6	300	60	-	D
Ammonium Sulfamate	-	-	-	-	F	20000	20000	20000	80000	250	8000	2000	-	D
Anthracene (PAH)	L	-	-	-	-	-	-	-	-	300	-	-	-	D
Atrazine	P	-	3	3	F	100	100	50	200	5	200	3	-	C
Baygon	-	-	-	-	F	40	40	40	100	4	100	3	-	C
Bentazon	-	-	-	-	F	300	300	300	900	2.5	90	20	-	D
Benz(a)anthracene (PAH)	T	-	zero	0.1	-	-	-	-	-	-	-	-	-	B2
Benzene	F	-	zero	5	F	200	200	-	-	-	-	-	100	A
Benzo(a)pyrene (PAH)	T	-	zero	0.2	-	-	-	-	-	-	-	-	-	D2*
Benzobfluoranthene (PAH)	T	-	zero	0.2	-	-	-	-	-	-	-	-	-	B2
Benzo(ghi)perylene (PAH)	T	-	-	-	-	-	-	-	-	-	-	-	-	D
Benzo(k)fluoranthene (PAH)	T	-	zero	0.2	-	-	-	-	-	-	-	-	-	B2
bis-2-Chloroisopropyl ether	-	-	-	-	F	4000	4000	4000	13000	40	1000	300	-	-
Bromacil	-	-	-	-	F	5000	5000	3000	8000	130	5000	90	-	C
Bromobenzene	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Bromochloroacetonitrile	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Bromochloromethane	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Bromodichloromethane (THM)	L	100	-	-	D	7000	7000	100	700	20	700	-	30	B2
Bromoform (THM)	L	100	-	-	D	15000	15000	100	700	20	700	-	-	B2
Bromomethane	-	-	-	-	F	100	100	100	500	1	50	10	-	D

100015

Chemicals	Standards: Status Reg.*	NIPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Butyl benzyl phthalate (BBP)	T	-	-	-	-	-	-	-	-	200	-	-	-	C
Butylate	-	-	-	-	F	2000	2000	1000	4000	50	2000	350	-	D
Butylbenzene n-	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Butylbenzene sec-	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Butylbenzene tert-	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Carbaryl	-	-	-	-	F	1000	1000	1000	1000	100	4000	700	-	D
Carbofuran	P	-	40	40	F	50	50	50	200	5	200	40	-	E
Carbon Tetrachloride	F	-	zero	5	F	4000	200	70	300	0.7	30	-	30	B2
Carboxin	-	-	-	-	F	1000	1000	1000	4000	100	4000	700	-	D
Chloral Hydrate	L	-	-	-	D	7000	1000	200	600	2	60	50	-	D
Chloramben	-	-	-	-	F	3000	3000	200	500	15	500	100	-	D
Chloramine	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chlorate	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chlordane	P	-	zero	2	F	60	60	0.5	0.5	0.045	2	-	3	B2
Chlorine	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chlorine dioxide	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chlorite	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chlorodibromomethane (THM)	L	100	-	-	D	7000	7000	100	700	20	700	100	-	C
Chloroethane	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chloroform (THM)	L	100	-	-	D	-	-	-	-	10	-	-	600	B2
Chloromethane	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Chlorophenol (2,4,6-)	L	-	-	-	D	-	-	-	-	-	-	-	300	B2
Chlorophenol (2,4-)	L	-	-	-	D	30	30*	30	100	3	100	20	-	D
Chlorophenol (2-)	L	-	-	-	D	50	50	50	200	5	200	40	-	D
p-Chlorophenyl methyl sulfide/sulfone/sulfoxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloropicrin	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorothalonil	-	-	-	-	F	200	200	200	600	15	500	-	150	B2
Chlorotoluene o-	L	-	-	-	F	2000	2000	2000	7000	20	700	100	-	D
Chlorotoluene p-	L	-	-	-	F	2000	2000	2000	7000	20	700	100	-	D
Chlorpyrifos	-	-	-	-	D	30	30	30	100	3	100	20	-	D

100016

Chlorobenzene: look under "mono_."

Chemicals	Standards: Status Reg.*	HPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Chrysene (PAH)	-	-	zero	0.2	-	-	-	-	-	-	-	-	-	B2
Cyanazine	L	-	-	-	F	100	100	20	70	2	70	10	-	D
Cyanogen Chloride	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Cymene p-	-	-	-	-	D	-	-	-	-	-	-	-	-	-
2,4-D	P	100	70	70	F	1000	300	100	400	10	400	70	-	D
DCPA (Dacthal)	-	-	-	-	F	80000	80000	5000	20000	500	20000	4000	-	D
Dalapon	T	-	200	200	F	3000	3000	300	900	26	900	200	-	D
Dichloroethylene (cis-1,2-)	P	-	70	70	F	4000	1000	3500	1000	10	400	70	-	D
Dichloroethylene (trans-1,2-)	P	-	100	100	F	20000	2000	2000	6000	20	600	100	-	D
Diazinon	-	-	-	-	F	20	20	5	20	0.09	3	0.6	-	E
Dibenz(a,h)anthracene (PAH)	T	-	zero	0.3	-	-	-	-	-	-	-	-	-	B2
Dibromoacetonitrile	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Dibromochloropropane (DBCP)	P	-	zero	0.2	F	200	50	-	-	-	-	-	3	B2
Dibromomethane	L	-	-	-	D	-	-	-	-	-	-	-	-	D
Dibutyl phthalate (DBP)	T	-	-	-	-	-	-	-	-	100	-	-	-	D
Dicamba	L	-	-	-	F	300	300	300	1000	30	1000	200	-	D
Dichloroacetaldehyde	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Dichloroacetic acid	L	-	-	-	D	50000	50000	500	2000	5	200	3	-	C
Dichloroacetonitrile	L	-	-	-	D	-	-	-	-	8	-	-	-	C
Dichlorobenzene, p-	F	-	75	75	F	10000	10000	10000	40000	100	4000	75	-	C
Dichlorobenzene o-,m-	P	-	600	600	F	9000	9000	9000	30000	80	3000	600	-	D
Dichlorodifluoromethane	-	-	-	-	F	40000	40000	9000	30000	200	5000	1000	-	D
Dichloroethane (1,1-)	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Dichloroethane (1,2-)	F	-	zero	5	F	700	700	700	2600	-	-	-	40	B2
Dichloroethylene (1,1-)	F	-	7	7	F	2000	1000	1000	4000	9	400	7	0.02	C
Dichloromethane	T	-	zero	5	F	10000	2000	-	-	60	2000	-	500	B2
Dichloropropane (1,1-)	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Dichloropropane (1,2-)	P	-	zero	5	F	-	90	-	-	-	-	-	60	B2
Dichloropropane (1,3-)	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Dichloropropane (2,2-)	L	-	-	-	D	-	-	-	-	-	-	-	-	-

100017

Chemicals	Standards: Status Reg.*	NPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Dichloropropene (1,1-)	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Dichloropropene (1,3-)	L	-	-	-	F	30	30	30	100	0.3	10	-	20	B2
Dieldrin	L	-	-	-	F	0.5	0.5	0.5	2	0.05	2	-	0.2	B2
Diethyl phthalate (DEP)	T	-	-	-	D	-	-	-	-	800	-	-	-	D
Diethylhexyl phthalate (DEHP)	T	-	zero	4	D	-	-	-	-	20	-	-	300	B2*
Diisopropyl methylphosphonate	-	-	-	-	F	8000	8000	8000	30000	80	3000	600	-	D
Dimethrin	-	-	-	-	F	10000	10000	10000	40000	300	10000	2000	-	D
Dimethyl methylphosphonate	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Dimethyl phthlate (DMP)	L	-	-	-	-	-	-	-	-	-	-	-	-	D
1,3-Dinitrobenzene	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Dinitrotoluene (2,4-)	L	-	-	-	D	-	-	-	-	-	-	-	-	-
2,4-/2,6-Dinitrotoluene	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Dinoseb	T	-	7	7	F	300	300	10	40	1	40	7	-	D
Dioxane p-	-	-	-	-	F	4000	400	-	-	-	-	-	700	B2
Diphenamid	-	-	-	-	F	300	300	300	1000	30	1000	200	-	D
Diquat	T	-	20	20	-	-	-	-	-	2.2	-	-	-	D
Disulfoton	-	-	-	-	F	10	10	3	9	0.04	1	0.3	-	E
1,4-Dithiane	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diuron	-	-	-	-	F	1000	1000	300	900	2	70	10	-	D
Endothall	T	-	100	100	F	800	800	200	200	20	700	100	-	D
Endrin	T	0.2	2	2	F	20	20	3	10	3	9	2	-	D
Epichlorohydrin	P	-	zero	TT	F	100	100	70	70	2	70	-	400	B2
Ethylbenzene	P	-	700	700	F	30000	3000	1000	3000	100	3000	700	-	D
Ethylene dibromide (EDB)	P	-	zero	0.05	F	8	8	-	-	-	-	-	0.04	B2
Ethylene glycol	-	-	-	-	F	20000	6000	6000	20000	2000	40000	7000	-	D
ETU	L	-	-	-	F	300	300	100	400	0.03	1	-	20	B2
Fenamiphos	-	-	-	-	F	9	9	6	20	0.25	9	2	-	D
Fluometuron	-	-	-	-	F	2000	2000	2000	5000	13	400	90	-	D
Fluorene (PAH)	T	-	-	-	-	-	-	-	-	40	-	-	-	D
Fluorotrichloromethane	-	-	-	-	F	7000	7000	3000	12000	300	10000	2000	-	D

100018

	µMCLG	µMCL	Class
Di Ethylhexyl Adipate	500	500	C

Chemicals	Standards: Status Reg.*	NIPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Fog Oil	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Fonofos	-	-	-	-	F	20	20	20	70	2	70	10	-	D
Formaldehyde	-	-	-	-	D	10000	5000	5000	20000	150	5000	1000	-	B1-Inha
Gasoline	-	-	-	-	D	-	-	-	-	-	-	5(benzene)	-	-
Glyphosate	T	-	700	700	F	20000	20000	1000	1000	100	4000	700	-	D
Heptachlor	P	-	zero	0.4	F	10	10	5	5	0.5	20	-	0.8	B2
Heptachlor epoxide	P	-	zero	0.2	F	10	-	0.1	0.1	0.013	0.4	-	0.4	B2
Hexachlorobenzene	T	-	zero	1	F	50	50	50	200	0.8	30	-	2	B2
Hexachlorobutadiene	-	-	-	-	F	300	300	100	400	2	70	1	50	C
Hexachlorocyclopentadiene	T	-	50	50	-	-	-	-	-	7	200	-	-	D
Hexane (n-)	-	-	-	-	F	10000	4000	4000	10000	-	-	-	-	D
Hexazinone	-	-	-	-	F	3000	3000	3000	9000	30	1000	200	-	D
HMX	-	-	-	-	F	5000	5000	5000	20000	50	2000	400	-	D
Hypochlorite	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Hypochlorous acid	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3,-c,d)pyrene (PAH)	T	-	zero	0.4	D	-	-	-	-	-	-	-	-	B2
Isophorone	L	-	-	-	D	15000	15000	15000	15000	200	7000	100	900	C
Isopropyl methylphosphonate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Lindane	P	4	0.2	0.2	F	1000	1000	30	100	0.3	10	0.2	3	C
Malathion	-	-	-	-	D	200	200	200	800	20	800	200	-	D
Maleic hydrazide	-	-	-	-	F	10000	10000	5000	20000	500	20000	4000	-	D
MCPA	-	-	-	-	F	100	100	100	400	1.5	53	11	-	E
Methomyl	-	-	-	-	F	300	300	300	300	25	900	200	-	D
Methoxychlor	P	100	400	400	F	6000	2000	500	2000	50	2000	400	-	D
Methyl ethyl ketone	-	-	-	-	F	80000	8000	3000	9000	25	900	200	-	D
Methyl parathion	-	-	-	-	F	300	300	30	100	0.25	9	2	-	D
Methyl tert butyl ether	L	-	-	-	D	3000	3000	500	2000	5	200	40	-	D
Metolachlor	L	-	-	-	F	2000	2000	2000	5000	150	5000	100	-	C
Metribuzin	L	-	-	-	F	5000	5000	300	900	25	900	200	-	D

100019

Di

Chemicals	Standards: Status Reg.*	NPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Monochloroacetic acid	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Monochlorobenzene	P	-	100	100	F	2000	2000	2000	7000	20	700	100	-	D
Naphthalene	-	-	-	-	D	500	500	500	2000	40	1000	300	-	D
Nitrocellulose (non-toxic)	-	-	-	-	F	-	-	-	-	-	-	-	-	-
Nitroguanidine	-	-	-	-	D	10000	10000	10000	40000	100	4000	700	-	D
Oxamyl (Vydate)	T	-	200	200	F	200	200	200	900	25	900	200	-	E
Ozone by-products	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Paraquat	-	-	-	-	F	100	100	50	200	4.5	200	30	-	E
Pentachloroethane	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Pentachlorophenol	P	-	0/2000	1/200	F	1000	300	300	1000	30	1000	0/200	-	B2/D
Phenanthrene (PAH)	T	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	-	-	-	-	D	6000	6000	6000	20000	600	20000	4000	-	D
Picloram	T	-	500	500	F	20000	20000	700	2000	70	2000	500	-	D
Polychlorinated byphenols (PCBs)	P	-	zero	0.5	P	-	-	1	4	-	-	-	0.5	B2
Prometon	-	-	-	-	F	200	200	200	500	15	500	100	-	D
Pronamide	-	-	-	-	F	800	800	800	3000	75	3000	50	-	C
Propachlor	-	-	-	-	F	500	500	100	500	13	500	90	-	D
Propazine	-	-	-	-	F	1000	1000	500	2000	20	700	10	-	C
Propham	-	-	-	-	F	5000	5000	5000	20000	20	600	100	-	D
Propylbenzene n-	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Pyrene (PAH)	T	-	-	-	-	-	-	-	-	30	-	-	-	D
RDX	-	-	-	-	F	100	100	100	400	3	100	2	30	C
Simazine	T	-	1	1	F	500	500	50	200	2	60	1	-	C
Styrene	P	-	zero/100	5/100	F	20000	2000	2000	7000	200	7000	0/100	1	B2/C
2,4,5-T	L	-	-	-	F	800	800	800	1000	10	350	70	-	D
2,3,7,8-TCDD (Dioxin)	T	-	zero	$5x10^{-8}$ mg/L	F	0.001E-04		1E-05	4E-05	1E-08	4E-05	-	2E-05	B2
Tebuthiuron	-	-	-	-	F	3000	3000	700	2000	70	2000	500	-	D
Terbacil	-	-	-	-	F	300	300	300	900	13	400	90	-	E
Terbufos	-	-	-	-	F	5	5	1	5	0.13	5	0.9	-	D
Tetrachloroethane (1,1,1,2-)	L	-	-	-	F	2000	2000	900	3000	30	1000	70	100	C

100020

Chemicals	Standards: Status Reg.*	NIPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Canc Grou
Totrachloroethane (1,1,2,2-)	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Tetrachloroethylene	P	-	zero	5	F	2000	2000	1000	5000	10	500	-	70	B2
Toluene	P	-	2000	2000	F	20000	3000	3000	10000	300	10000	2000	-	D
Toxaphene	P	5	zero	3	F	500	40	-	-	100	3.5	-	3	B2
2,4,5-TP	P	10	50	50	F	200	200	70	300	7.5	300	50	-	D
1,1,2-Trichloro-1,2,2-trifluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroacetic acid	L	-	-	-	D	30000	30000	30000	100000	300	10000	200	-	C
Trichloroactonitrile	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Trichlorobenzene (1,2,4-)	T	-	0	0	F	100	100	100	500	1	50	9	-	D
Trichlorobenzene (1,3,5-)	-	-	-	-	F	600	600	600	2000	6	200	40	-	D
Trichloroethane (1,1,1-)	F	-	200	200	F	100000	40000	40000	100000	90	1000	200	-	D
Trichloroethane (1,1,2-)	T	-	3	5	F	600	400	400	1000	4	100	3	60	C
Trichloroethanol (2,2,2-)	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	F	-	zero	5	F	-	-	-	-	7	300	-	300	B2
Trichloropropane (1,1,1-)	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Trichloropropane (1,2,3-)	-	-	-	-	F	600	600	600	2000	6	200	40	-	-
Trifluralin	L	-	-	-	F	30	30	30	100	7.5	260	5	500	C
Trimethylbenzene (1,2,4-)	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Trimethylbenzene (1,3,5-)	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Trinitroglycerol	-	-	-	-	F	5	5	5	5	-	-	5	-	-
Trinitrotoluene	-	-	-	-	F	20	20	20	20	0.5	20	2	100	C
Vinyl chloride	F	-	zero	2	F	3000	3000	10	50	-	-	-	1.5	A
White phosphorus	-	-	-	-	D	-	-	-	-	-	-	-	-	-
Xylenes	P	-	10000	10000	F	40000	40000	40000	100000	2000	60000	10000	-	D
Zinc chloride	-	-	-	-	D	-	-	-	-	-	-	-	-	-

100021

Chemicals	Standards: Status Reg.*	NIPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10 kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
IORGANICS														
Aluminum	L	-	-	-	D	-	-	-	-	-	-	-	-	-
Ammonia	L	-	-	-	D	-	-	-	-	-	-	30000	-	D
Antimony	T	-	3	10/5	D	15	15	15	15	0.4	15	3	-	D
Arsenic	T	50	zero	-	D	-	-	-	-	1	-	-	3	A
Asbestos (fibers/l > 10um)	P	-	7E+06	7E+06	-	-	-	-	-	-	-	-	-	-
Barium	P	1000	5000	5000	F	5000	5000	5000	5000	-	-	5000	-	D
Beryllium	T	-	zero	1	D	30000	30000	4000	20000	5	200	-	0.7	B2
Boron	L	-	-	-	D	2000	2000	900	3000	90	3000	600	-	D
Cadmium	P	10	5	5	F	40	40	5	20	0.5	20	5	-	D
Chromium (total)	P	50	100	100	F	1000	1000	200	800	5	200	100	-	D
Copper	P	-	1300	1300	-	-	-	-	-	-	-	-	-	D
Cyanide	T	-	200	200	F	200	200	200	800	22	800	200	-	D
Fluoride	F	1.4-2.4	4000	4000	-	-	-	-	-	60	-	-	-	-
Lead (at source)	P	-	zero	5	-	-	-	-	-	-	-	-	-	B2
Lead (at tap)	P	50	zero	TT	-	-	-	-	-	-	-	-	-	B2
Manganese	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	P	2	2	2	F	-	-	-	2	0.3	10	2	-	D
Molybdenum	L	-	-	-	D	-	-	-	-	-	-	-	-	D
Nickel	T	-	100	100	F	1000	1000	100	600	20	600	100	-	D
Nitrate (as N)[1]	P	10000	10000	10000	F	-	10000*	-	-	-	-	-	-	D
Nitrite (as N)	P	-	1000	1000	F	-	1000	-	-	-	-	-	-	D
Nitrate + Nitrite	P	-	10000	10000	-	-	-	-	-	-	-	-	-	-
Selenium	P	10	50	50	-	-	-	-	-	-	-	-	-	-
Silver	L	50	-	-	D	200	200	200	200	5	200	100	-	D
Sodium	L	-	-	-	D	-	-	-	-	20000***	-	-	-	-
Strontium	L	-	-	-	D	25000	25000	25000	90000	2500	90000	17000	-	D
Sulfate	T	-	400000	400000	-	-	-	-	-	-	-	-	-	-
Thallium	T	-	0.5	2/1	D	7	7	7	20	0.07	2	0.4	-	-
Vanadium	L	-	-	-	D	-	-	-	-	-	-	-	-	D
Zinc	L	-	-	-	D	-	-	-	-	-	-	-	-	-

100022

Chemicals	Standards: Status Reg.*	NIPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70 kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Canc Grou
MICROBIOLOGY AND TURBIDITY														
Cryptosporidium	L	-	-	-	-	-	-	-	-	-	-	-	-	-
Giardia lamblia	F	-	zero	TT	-	-	-	-	-	-	-	-	-	-
Legionella	F[&]	-	zero	TT	F	-	-	-	-	-	-	-	-	-
Standard plate count	F[&]	-	NA	TT	-	-	-	-	-	-	-	-	-	-
Total coliform (current MCL based on density)	F	yes	NA	varies	-	-	-	-	-	-	-	-	-	-
Total coliform (after 12/31/90)	F	yes	zero	**	-	-	-	-	-	-	-	-	-	-
Turbidity (before 1/1/91)	F	yes	NA	-	-	-	-	-	-	-	-	-	-	-
Turbidity (after 12/31/90)	F	yes	NA	1 & 5 NTU/PS	-	-	-	-	-	-	-	-	-	-
Viruses	F[&]	-	zero	TT	-	-	-	-	-	-	-	-	-	-

Key: PS, TT, F, defined as previously stated.

&: Final for systems using surface water; also being considered for regulation under groundwater disinfection rule.

Varies: MCL varies based on analytical method used, sample volume, and number of samples collected per month. Also, tw types of MCLs = the monthly average and the "single sample" MCL. Both are based on coliform density.

"1 and 5 NTU": These are two MCLs for turbidity. The monthly average MCL is 1 NTU; the two-day consecutive average MCL is 5 NTU.

100023

Chemicals	Status Reg.*	NIPDWR (µg/l)	MCLG (µg/l)	MCL (µg/l)	Status HA*	One-day µg/l	Ten-day µg/l	Longer-term µg/l	Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Canc Grou
RADIONUCLIDES														
Beta particle and photon activity (formerly man-made radionuclides)	T	mrem/yr	zero	-	-	-	-	-	-	-	-	-	4 mrem/y	A
Gross alpha particle activity	T	15 pCi/l	zero	-	-	-	-	-	-	-	-	-	-	A
Radium 226/228	T	5 pCi/l	zero	-	-	-	-	-	-	-	-	-	29 pCi/l	A
Radon	T	-	zero	-	-	-	-	-	-	-	-	-	160 pCi/l	A
Uranium	T	-	zero	-	-	-	-	-	-	-	-	-	60 pCi/l	A

MICROBIOLOGY

	Status	NIPDWR	MCLG	MCL
Cryptosporidium	L	-	-	-
Giardia lamblia	F	-	zero	TT
Legionella	F[&]	-	zero	TT
Standard Plate Count	F[&]	-	NA	TT
Total Coliforms (Current)	F	yes	NA	varies
Total Coliforms (after 12/31/90)	F	-	zero	**
Turbidity (before 1/1/91)	F	yes	NA	1 and 5 NTU
Turbidity (after 12/31/90)	F	-	NA	PS
Viruses	F[&]	-	zero	TT

SECONDARY MAXIMUM CONTAMINANT LEVELS

April 1990

Chemicals	Status*	SMCLs (mg/l)
Aluminum	P	0.05 to 0.2
Chloride	F	250
Color	F	15 color units
Copper	F	1
Corrosivity	F	non-corrosive
Dichlorobenzene -o	P	0.01
Dichlorobenzene -p	P	0.005
Ethylbenzene	P	0.03
Fluoride	F	2
Foaming Agents	F	0.5
Hexachlorocyclopentadiene		0.008
Iron	F	0.3
Manganese	F	0.05
Odor	F	3 threshold odor numbers
Pentachlorophenol	P	0.03
pH	F	6.5 - 8.5
Silver	P	0.09
Sulfate	F	250
Toluene	P	0.04
Total Dissolved Solids (TD)	F	500
Xylene	P	0.02
Zinc	F	5

* Status Codes: P - proposed, F - final

SAMPLING PLAN
BAREFOOT SANITARY SERVICES

Prepared by:
Charles W. Fisher
July 26, 1990
Region III - Technical Assistance Team
TDD #9007-25 PCS #3364
WESTON/MP Division
Wheeling, West Virginia

For Marjorie Easton, OSC
U.S. EPA, Region III
Western Response and Preparedness Section
Wheeling, West Virginia

SAMPLING PLAN

1. PROJECT NAME: Barefoot Sanitary Services
TDD #8911-15B PCS #3114

2. PROJECT REQUESTED BY: Marjorie Easton, OSC, U.S. EPA

3. DATE REQUESTED: July 26, 1990

4. DATE OF PROJECT INITIATION: July 23, 1990

5. PROJECT OFFICER: Charles W. Fisher, TAT, Region III

6. QUALITY ASSURANCE REVIEWER: Marion Murphy, TAT, Region III

7. PROJECT DESCRIPTION:

A. BACKGROUND: The Barefoot Sanitary Services Site, Blair County, Pennsylvania, is located on 44 acres on top of Catfish Ridge. The site, which operated from 1960 until 1971, was the disposal area for Barefoot Sanitary Services. Barefoot Sanitary Services disposed of oily wastes and sludges from industry and septic tanks onsite, as well as solid industrial wastes from metal finishing operations. Solid waste was dumped into piles and unlined lagoons, and fractures and sinkholes were used to dispose of liquid waste. No permits were ever obtained for the disposal site, and in 1972, PA DER filed an equity suit against the site owners, George and Richard Barefoot, to cease disposal on this site. The area residents rely on surface water and groundwater for their drinking water needs.

The following contaminants were found on site by NUS:

Contaminant	Maximum Concentration
1. Trichloroethylene	6,500 ppm
2. Xylenes	190 ppm
3. Toluene	290 ppm
4. Chromium	11,200 ppm
5. Lead	3,340 ppm
6. Cadmium	286 ppm
7. Mercury	10 ppm
8. Cyanide	606 ppm

B. OBJECTIVE AND SCOPE: A total of approximately 30 homes plus a field blank are to be sampled to determine if contamination exists and if it does, to determine the extent of contamination to the well water supplies of nearby residential homes.

C. DATA USAGE: The data will be used to determine if a threat exists to nearby residential wells and if any further action needs to be taken.

D. SAMPLING PROCEDURE:

Each resident will be identified and historical and physical data documented about their residential wells.

1. Water samples will be collected at a point closest to the source and before any water treatment. Each residential water system will be run for 5 minutes or sufficient time to purge the whole system.

2. At each residence, water samples will be collected in three 40-ml vials (for the VOA) and one 1-liter glass or polyethylene (for CLP METALS) for analytical. QA/QC will include 1 MS/MSD per matrix per analysis, and 1 surrogate spike per sample and a field blank. At one residence an extra set of samples will be taken for duplicate analysis. Each container will be identified and the container labeled with the residence and sample number, date sampled, time sampled, and the test method. A preservative (nitric acid, pH<2) is to be added to each CLP METALS sample. Each sample is to be placed in ice storage for preservation and shipment, along with chain-of-custody forms.

3. For VOA and CLP METALS, a blank sample will be collected using distilled water .

Photodocumentation, log books, lab reports and chain of custody records will be handled as per TAT and EPA policy.

WESTON · MPD

TDD Number: **9010-105**
FCS Number: **1105**

SITE LOCATION MAP

(Hollidaysburg Quadrangle)

100029

Barefoot Sanitary Services
Hollidaysburg, Blair County, PA

SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

SAMPLING PLAN
BAREFOOT SANITARY SERVICES

Prepared by:
Charles W. Fisher
July 26, 1990
Region III - Technical Assistance Team
TDD #9007-25 PCS #3364
WESTON/MP Division
Wheeling, West Virginia

For Marjorie Easton, OSC
U.S. EPA, Region III
Western Response and Preparedness Section
Wheeling, West Virginia

SAMPLING PLAN

1. PROJECT NAME: Barefoot Sanitary Services
TDD #8911-15B PCS #3114

2. PROJECT REQUESTED BY: Marjorie Easton, OSC, U.S. EPA

3. DATE REQUESTED: July 26, 1990

4. DATE OF PROJECT INITIATION: July 23, 1990

5. PROJECT OFFICER: Charles W. Fisher, TAT, Region III

6. QUALITY ASSURANCE REVIEWER: Marion Murphy, TAT, Region III

7. PROJECT DESCRIPTION:

A. BACKGROUND: The Barefoot Sanitary Services Site, Blair County, Pennsylvania, is located on 44 acres on top of Catfish Ridge. The site, which operated from 1960 until 1971, was the disposal area for Barefoot Sanitary Services. Barefoot Sanitary Services disposed of oily wastes and sludges from industry and septic tanks onsite, as well as solid industrial wastes from metal finishing operations. Solid waste was dumped into piles and unlined lagoons, and fractures and sinkholes were used to dispose of liquid waste. No permits were ever obtained for the disposal site, and in 1972, PA DER filed an equity suit against the site owners, George and Richard Barefoot, to cease disposal on this site. The area residents rely on surface water and groundwater for their drinking water needs.

The following contaminants were found on site by NUS:

Contaminant	Maximum Concentration
1. Trichloroethylene	6,500 ppm
2. Xylenes	190 ppm
3. Toluene	290 ppm
4. Chromium	11,200 ppm
5. Lead	3,340 ppm
6. Cadmium	286 ppm
7. Mercury	10 ppm
8. Cyanide	606 ppm

B. OBJECTIVE AND SCOPE: To determine the extent of contamination onsite and locate any suspected new areas of contamination using previous analytical data from FIT 3.

C. DATA USAGE: The data will be used to determine the levels of contamination at the surface and at various depths. These findings will be used to determine if subsequent removal actions are warranted and feasible.

D. SAMPLING PROCEDURE:

Previously sampled areas are to be located and identified for further sampling. New areas are also to be located and identified for sampling (see attached site sketch for sampling points). In addition, a site inspection will be necessary to identify any additional sampling points. A total of 10 soil samples are to be taken which includes 1 background. QA/QC will include 1 MS/MSD per matrix per analysis, and 1 surrogate spike per sample.

1. Soil samples will be collected with a clean auger and disposable dedicated sampling scopes at a depth of 0 inches to 2 inches for top sediment and 1 foot for bottom soil. The auger is to be deconed between each sampling using soap and water, then methanol.

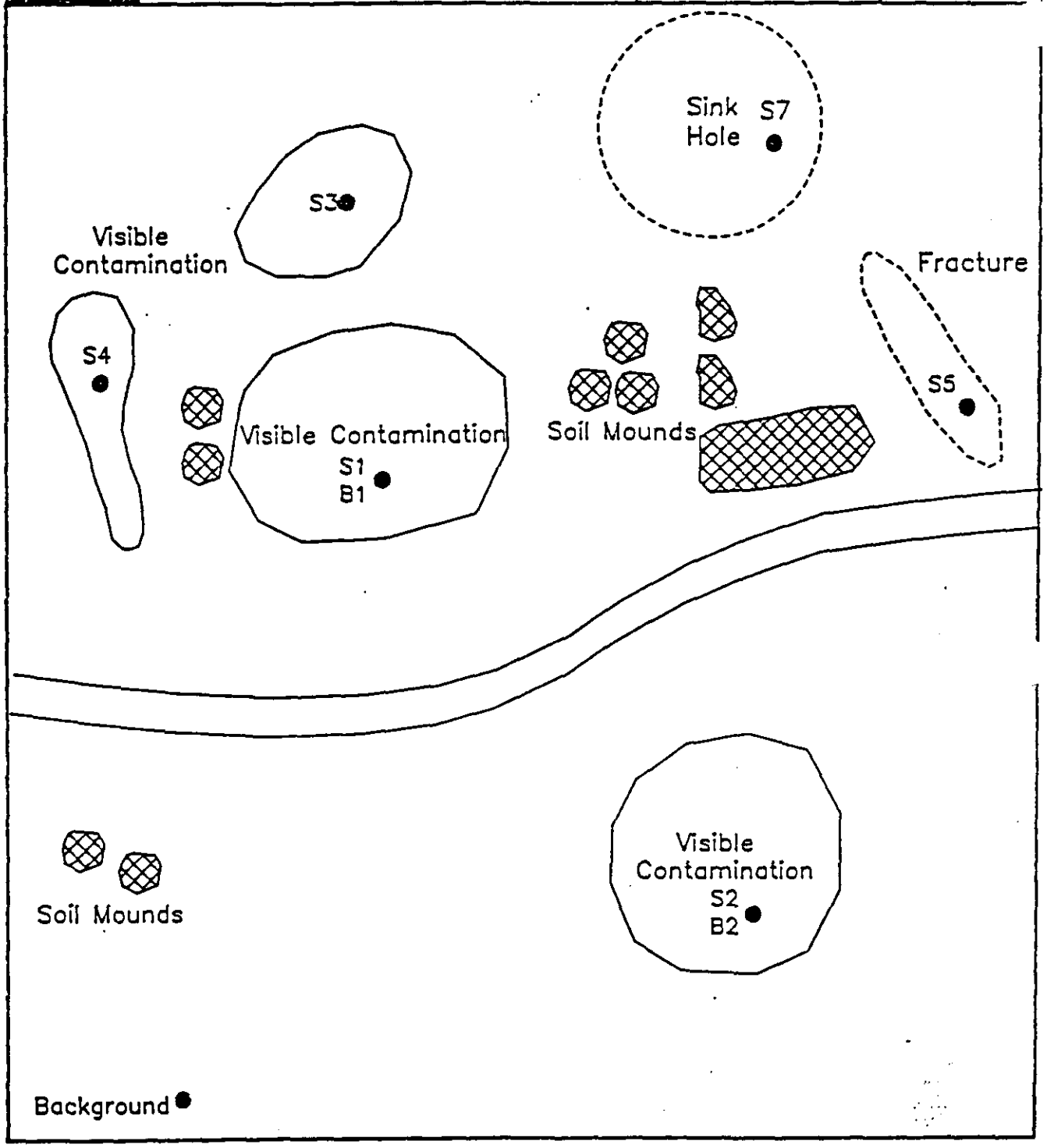
2. At each station, soil samples will be collected and placed in presterilized sample jars with Teflon liners. One 8-oz. sample jar for metals/cyanide, two 40-ml. sample vials for VOA, and one 8-oz. sample jar for Pesticide/PCB's. Each station will be identified and the container labeled with the station number, date sampled, time sampled, and the test method. Each sample is to be placed in ice storage for preservation and shipment, along with chain-of-custody forms.

3. A background soil sample will be taken in the area of the site.

Photodocumentation, log books, lab reports and chain of custody records will be handled as per TAT and EPA policy.

WESTON · MPD

TDD Number: 9007-25
PCS Number: 3364



SITE SAMPLING PLAN
Barefoot Sanitary Services Site
Hollidaysburg, Blair County, PA

100033

SAMPLING PLAN
BAREFOOT SANITARY SERVICES

Prepared by:
Charles W. Fisher
October 16, 1990
Region III - Technical Assistance Team
TDD #9010-105 PCS #1105
WESTON/MP Division
Wheeling, West Virginia

For Marjorie Easton, OSC
U.S. EPA, Region III
Western Response and Oil Enforcement Section
Wheeling, West Virginia

SAMPLING PLAN

1. PROJECT NAME: Barefoot Sanitary Services
TDD #9010-105 PCS #1105

2. PROJECT REQUESTED BY: Marjorie Easton, OSC, U.S. EPA

3. DATE REQUESTED: October 16, 1990

4. DATE OF PROJECT INITIATION: July 23, 1990

5. PROJECT OFFICER: Charles W. Fisher, TAT Region III

6. QUALITY ASSURANCE REVIEWER: Marian Murphy, TAT Region III

7. PROJECT DESCRIPTION:

A. BACKGROUND: The Barefoot Sanitary Services Site, Blair County, Pennsylvania, is located on 44 acres on top of Catfish Ridge. The site, which operated from 1960 until 1971, was the disposal area for Barefoot Sanitary Services. The company disposed of oily wastes and sludges from industry and septic tanks, as well as solid industrial wastes from metal finishing operations. Solid waste was dumped into piles and unlined lagoons, and fractures and sinkholes were used to dispose of liquid waste. No permits were ever obtained for the disposal site. In 1972, PA DER filed an equity suit against the site owners, George and Richard Barefoot, to cease disposal on this site. The area residents rely on surface water and groundwater for their drinking water needs.

On August 8 and 9, 1990, EPA's Technical Assistance Team (TAT) sampled the site. On the basis of the analytical results, additional sampling is being conducted.

B. OBJECTIVE AND SCOPE: To extend the perimeter of the August 1990 TAT sampling to determine if the site boundaries need to be expanded, to determine if the cyanide found onsite in the previous TAT sampling is reactive, and to duplicate the earlier PA DER sampling. Seven soil samples and one residential well water sample will be collected.

C. DATA USAGE: The data will be used to determine the levels of contamination at previously sampled and unsampled locations and to support decisions about future site activities.

D. SAMPLING PROCEDURE:

SOIL

Areas to be sampled are identified in the attached site sketch. The sample location numbering scheme used in the map is the same as that used in the previous TAT sampling, and picks up where the earlier sample location numbers stopped.

A total of seven soil samples are to be taken. Six of the samples will be collected at depths ranging from 0 inches to 2 inches using disposable sampling scoops, so decontamination will not be required. The seventh soil sample (station B1) will be collected at a depth of 12 inches using a clean auger. Samples will be analyzed as follows:

Station Number	Test
B1	Reactive Cyanide
S9 thru S14	Metals, VOA's, Pesticide/PCB

At each station, soil samples will be placed in clean sample jars with Teflon liners. One 8-oz. sample jar will be collected for sample B-1 for cyanide. One 8-oz. sample jar for metals and pesticide/PCB, and two 40-ml. sample vials for volatile organics analysis will be collected for the remaining samples. Each station will be identified and the container labeled with the station number, date sampled, and time sampled.

WATER

The residential well water will be collected at a point closest to the source and before any water treatment. The system will be run for 15 minutes or for sufficient time to purge the whole system.

The residential water will be collected in two 40-ml vials for volatile organics analysis and in one 1-liter polyethylene bottle for metals analysis. Each container will be identified and the container labeled with the residents name, sample number, date sampled, and time sampled. A preservative (nitric acid, pH<2) is to be added to the bottle for metals analysis. A blank sample will be collected using distilled water .

E. SAMPLE PACKAGING

Sample containers will be labeled and shipped with a sample tag or sticker affixed to the container, with an EPA Region III sample tag wrapped about the sample container. The 8-oz. jars and 40-ml vials will be placed inside zip-lock bags, then placed inside metal cans packed with vermiculite and the lids sealed with chain-of-custody seals. One-liter polyethylene bottles will be placed in zip-lock bags. All samples are to be placed in cooler(s) packed with ice and vermiculite. Chain-of-custody forms will be affixed to the underside of the cooler lid. Custody seals will be affixed to the lid and latch.

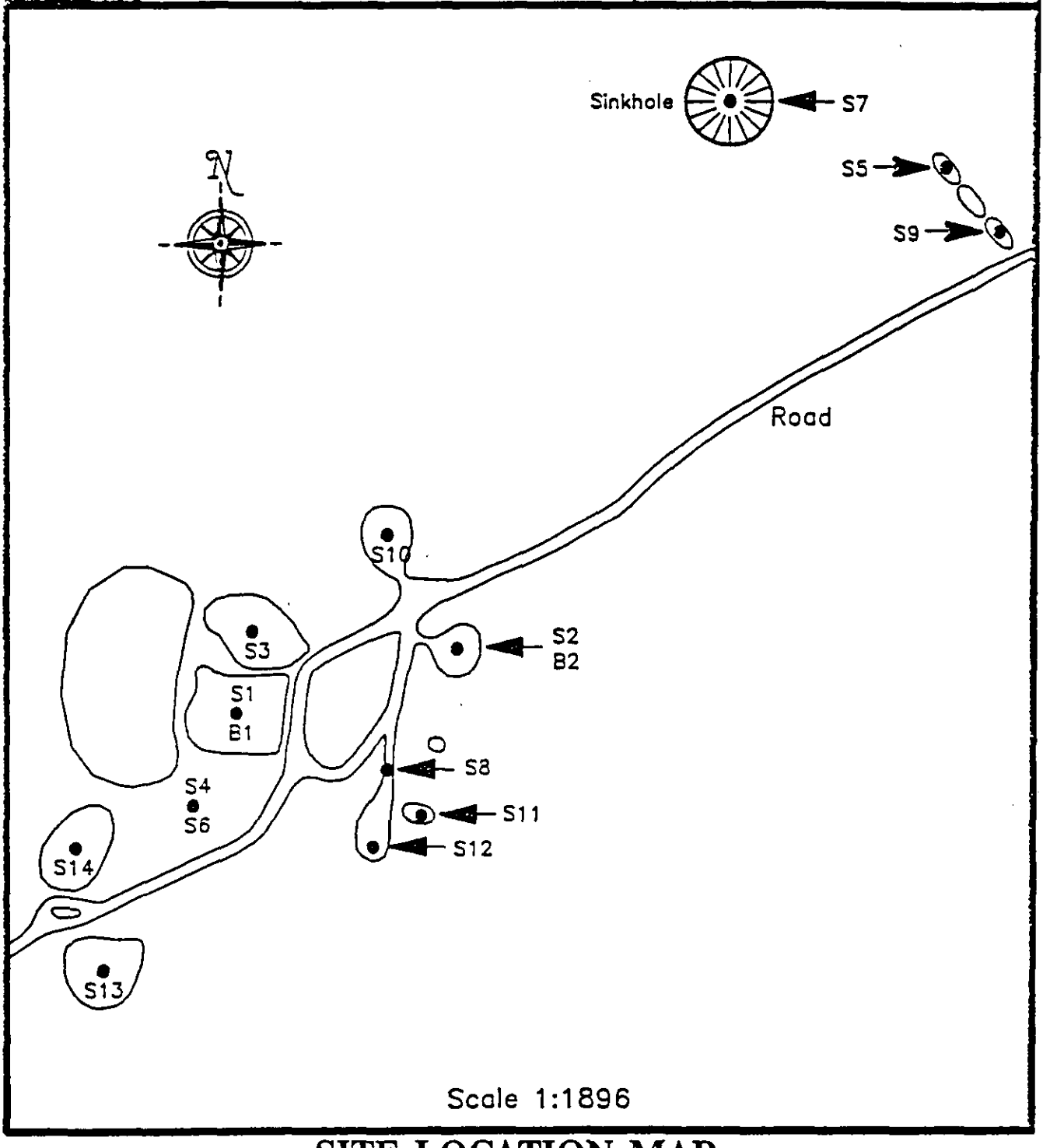
Sample coolers will also be labeled with origin and destination locations. In addition, coolers may have stickers affixed to the sides stating, "This End Up" and/or "Fragile, Glass, Handle With Care."

F. ANALYTICAL PROCEDURES

Samples will be analyzed according to "Test Methods for Evaluating Solid Waste," SW-846, Third Edition, November 1986. Quality assurance/quality control (QA/QC) will include one matrix spike (MS/MSD) per matrix per analysis and one surrogate spike per sample.

WESTON · MPD

TDD Number: 9010-105
PCS Number: 1105



SITE LOCATION MAP
Barefoot Sanitary Services
Hollidaysburg, Blair County, PA

100038

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO. TDD 9007-25

PROJECT NAME BD

SAMPLERS: (Signature) [signature]

PAGE 1 of 2

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA	Metals/Inorganics					ITR #	TAG #
S1	8/5/90	1100		✓	AREA 1	3	X	X					CDA50	3-154966
														3-154966
R1	8/5/90	1120		✓	AREA 1	6	X	X					CDA51	3-154967
														3-154425
														3-154968
														3-154963
S2	8/5/90	1230		✓	AREA 2	3	X	X					CDA52	3-154429
														3-154428
R2	8/5/90	1230		X	AREA 2	3	X	X					CDA53	3-154431
														3-154430
S3	8/5/90	1250		X	AREA 3	3	X	X					CDA54	3-154771
														3-154770
S4	8/5/90	1330		X	AREA 4	3	X	X					CDA55	3-154774
														3-154773
S6	8/5/90	1330		X	AREA 4	3	X	X					CDA56	3-154774

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	8/5/90 1850				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

100039

Distribution: Original Accompanies Shipment; Copy to Coordinator Field

ENVIRONME[illegible] PROTECTION AGENCY
Office of Enforcement

REG 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PAGE 2 of 2

PROJ. NO.: TAD 7007-25
PROJECT NAME: BD
SAMPLERS: (Signature) Charles [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA	PESTICIDE/PCB					REMARKS ITR#	TAG #
S6	8/07/90	1330		✓	AREA 4	CONT.							CDA56	3-154777
S5	8/07/90	1430		✓	AREA 5	3							CDA57	3-154775
														3-154779
S7	8/07/90	1420		✓	AREA 7	3							CDA58	3-154045
														3-154052
S8	8/07/90	1520		✓	AREA 8	3							CDA59	3-154048
														3-154047

100040

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles H. [illegible]	8/07/90 1855				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

PROJ. NO.: TPD 9607-25
PROJECT NAME: BD
SAMPLERS: (Signature) Charles [illegible]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TOTAL METALS	CYANIDE					REMARKS TTR #	REMARKS TAG #
S1	3/07/9	1100		✓	BRER 1	1	X	X					MCFB 01	3-154767
S1	[illegible]	1130		✓	BRER 1	2	X	X					MCFB 02	3-154950
S2	[illegible]	1230		✓	BRER 2	1	X	X					MCFB 03	~~3-154423~~ 3-154427
S2	3/07/9	1230		✓	BRER 2	1	X	X					MCFB 04 cut	3-154426
S3	3/07/9	1250		✓	BRER 3	1	X	X					MCFB 05	3-154769
S4	3/07/9	1330		✓	BRER 4	1	X	X					MCFB 06	3-154772
S6	3/07/9	1350		✓	BRER 4	1	X	X					MCFB 07	3-154776
S5	3/07/9	1430		X	BRER 5	1	X	X					MCFB 08	3-154779
S7	3/07/9	1420		X	BRER 7	1	X	X					MCFB 09	3-154781
S8	3/07/9	1520		X	BRER 8	1	X	X					MCFB 10	3-154046

100041

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles [illegible]	3/07/9 1855				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field

2 7046

ENVIRONMEN PROTECTION AGENCY
Office of Enforcement

REG.)
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.: TDD 9007-15
PROJECT NAME: BD
SAMPLERS: (Signature)

8/1/90
-549488566

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA						ITR#	TAG#
R22	8/9/90	1505		X	D. Schaefer	2	X						CDA 81	3-154451
R23	8/9/90	1520		X	R. Schaefer	2	X						CDA 82	3-154456
R24	8/9/90	1545		X	M. Weaver	2	X						CDA 83	3-154457
R25	8/9/90	1610		X	S. Dodson	~~2~~ 6	X						CDA 84	3-154459
														3-154458
														3-154539
R26	8/9/90	1630	X	X	M. McCormick	2	X						CDA 85	3-154537

100042

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	8/9/90 1715				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.: TDD 9007-25
PROJECT NAME: BD
SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA						REMARKS ITR #	REMARKS TAG #
R9	8/8/90	2005		X	L. Moore	2	X						CDA68	3-154819
R10	8/8/90	2040		X	C. Manor	2	X						CDA69	3-154092
R11	8/8/90	2055		X	J. Schaefer	2	X						CDA70	3-154088
R12	8/9/90	1055		X	H. Corl	2	X						CDA71	3-154090
R13	8/9/90	1110		X	Z. Auto	2	X						CDA72	3-154089
R14	8/9/90	1125		X	C. Hiedler	2	X						CDA73	3-154102
R15	8/9/90	1140		X	G. Sager	2	X						CDA74	3-154460
R16	8/9/90	1205		X	S. Clark	6	X						CDA 75	3-154442
														3-154443
														3-154467
R17	8/9/90	1230		X	D. Detwiler	2	X						CDA76	3-154447
R18	8/9/90	1330		X	Well 1	2	X						CDA77	3-154453
R19	8/9/90	1330		X	Well 2	2	X						CDA78	3-154454
R20	8/9/90	1330		X	Well 3	2	X						CDA79	3-154455
R21	8/9/90	1445		X	F Herron	2	X						CDA80	3-154522

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	8/9/90 1715				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator File

10604

ENVIRONMEN PROTECTION AGENCY
Offi... of Enforcement

REGI... 3
Curtis Bldg., 6t. Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
TDD 9007-25	BD

SAMPLERS: *(Signature)*

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals						REMARKS ITR #	TAG #
R23	8/9/90	1520		X	R. Stoffer	1	X						MCFB 33	3-154531
R24	8/9/90	1545		X	N. Weaver	1	X						MCFB 34	3-154532
R25	8/9/90	1610		X	S. Dodson	2	X						MCFB 35	3-154533
~~R26~~														3-154534
R26	8/9/90	1630		X	N. McCormick	1	X						MCFB 36	3-154535

100044

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
[signature]	8/9/90 1715				
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

3- 7040

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO. TDO 9007-25

PROJECT NAME: BD

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	METALS						REMARKS ITR #	TAG #
R9	8/8/90	2005		X	L. MOORE	1	X						MCFB 19	3-154095
R10	8/8/90	2040		X	C. Mannor	1	X						MCFB 20	3-~~134010~~ 154965 CT
R11	8/8/90	2055		X	J. Shaffer	1	X						MCFB 21	3-154086
R12	8/8/90	1055		X	H. CORL	1	X						MCFB 22	3-154091
R13	8/9/90	1110		X	Z. Auto	1	X						MCFB 23	3-154093
R14	8/9/90	1125		X	C Heidler	1	X						MCFB 24	3-154094
R15	8/9/90	1140		X	G. SAGER	1	X						MCFB 25	3-154446
R16	8/9/90	1205		X	S. Clark	2	X						MCFB 26	3-154449
														3-154450
R17	8/9/90	1230		X	D Oetwiler	1	X						MCFB 27	3-154448
R18	8/9/90	1345		X	Well #1	1	X						MCFB 28	3-154444
R19	8/9/90	1345		X	Well #2	1	X						MCFB 29	3-154445
R20	8/9/90	1345		X	Well #3	1	X						MCFB 30	3-154452
R21	8/9/90	1445		X	[illegible]	1	X						MCFB 31	3-154540
R22	8/9/90	[illegible]		X	[illegible]		X						MCFB 32	3-154530

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	8/9/90 1715				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

100045

Distribution: Original Accompanies Shipment; Copy to Coordinator Fie[illegible]s

2 7020

ENVIRONMEN PROTECTION AGENCY
Offi. Enforcement

REGI 1
Curtis Bldg., 6th. Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.: TPD 7007-25

PROJECT NAME: BD

SAMPLERS: (Signature) Charles Fuller

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	METALS						REMARKS ITR #	REMARKS TAG #
R1	8/8/90	1150		✓	W. JOHNK	1	X						MCFB 11	3-154751
R2	8/8/90	1210		✓	B ANDREWS	1	X						MCFB 12	3-154821
R3	8/8/90	1235		✓	RON LEIGHTY	1	X						MCFB 13	3-154820
R4	8-8-90	1335		✓	RAY HEIDLER	1	X						MCFB 14	3-154818
R5	8-8-90	1510		✓	J. MACDONALD	1	X						MCFB 15	3-154100
R6	8-8-90	1530		✓	B. WILSON	1	X						MCFB 16	3-154101
R7	8-8-90	1555		✓	H. Link	1	X						MCFB 17	3-154964
R8	8/8/90	1615		✓	Blank	1	X						MCFB 18	3-154097

100046

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles E. Fuller	8/8/90 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

3 7036

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 3
Curtis Bldg., 6th & Walnut Sts.
Philadelphia, Pennsylvania 19106

CHAIN OF CUSTODY RECORD

PROJ. NO.: 700/9007/25

PROJECT NAME: BD

SAMPLERS: (Signature) Charles Fisher

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOA						REMARKS ITR#	REMARKS TAG#
R1	8/8/90	1150		✓	CO. JOHNIE	2	X						CDA60	3-154750
R2	8/8/90	1210		✓	B. Andrews	2	X						CDA 61	3-154056
R3	8/8/90	1225		✓	R. Leighty	2	X						CDA 62	3-154737
R4	8/8/90	1335		✓	R. HEIDLER	2	X						CDA 63	3-154753
R5	8/8/90	1510		✓	J. MacDonald	2	X						CDA 64	3-154752
R6	8/8/90	1550		✓	B. Willson	2	X						CDA 65	3-154099
R7	8/8/90	1555		✓	H. Lioli	2	X						CDA 66	3-154969
R8	8/8/90	1615		✓	Blank	2	X						CDA 67	3-154098

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Charles H. Fisher	8/8/90 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field

2- 7025

Soil Volatile Organic Results for Barefoot Sanitary Services
Results reported as ug/Kg

Parameter	S-1	B-1	S-2	B-2	S-3	S-4	S-6	S-5	S-7	S-8
Chloromethane										
Bromomethane										
Vinyl chloride										
Chloroethane										
Methylene chloride										
Acetone										
Carbon disulfide										
1,1-Dichloroethene										
1,1-Dichloroethane	4900J									
Total 1,2-Dichloroethene	250000	1400000J								
Chloroform										
1,2-Dichloroethane										
2-Butanone			70J							
1,1,1-Trichloroethane										
Carbon tetrachloride										
Vinyl acetate										
Bromodichloromethane										
1,2-Dichloropropane										
cis-1,2-Dichloropropane										
Trichloroethene	470000	43000000L		920						
Dibromchloromethane										
1,1,2-Trichloroethane										
Benzene	2000J									
Trans-1,3-dichloropropane										
Bromoform										
4-Methyl-2-pentanone										
2-Hexanone										
Tetrachloroethene										
1,1,2,2-Tetrachloroethane										
Toluene	24000L	1200000J	66J							
Chlorobenzene										
Ethylbenzene										
Styrene										
Total xylenes	7500J									

100048

Soil Metal Results for Barefoot Sanitary Services
Results reported in ug/g

Parameter	S-1	B-1	S-2	B-2	S-3	S-4	S-6	S-5	S-7	S-8
Aluminum	5160	3650	5440	7450	7390	3460	2330	9270	5530	2470
Antimony	20.9	13.9	71.8	13.2	15.0	83.4	147	16.4	8.4	16.2
Arsenic	22.6L	14.1L	18.0L	3.5J	14.6L	8.1L	14.5L	20.5L	6.4L	4.2L
Barium	1250	557	510	153	470	878	719	639	230	265
Beryllium	0.92	0.58	0.76	0.54	1.9	0.62	0.65	2.3	1.1	0.32
Cadmium	172	56.2	81.9	6.1	19.8	8.4	8.5	4.4	2.2	12.1
Calcium	10100	10100	12700	2310	3920	4860	4470	12400	7600	3600
Chromium	423	104	5220	375	145	7270	13200	23.1	8.7	216
Cobalt	20.5	18.5	25.9	8.5	6.8	18.3	23.2	14.8	9.8	7.7
Copper	1550	633	11500	821	2110	10200	11600	31.1	18.0	211
Iron	25200	26800	31400	15000	26800	25500	30300	15400	11600	20700
Lead	1090	630	884	54.1	964	903	1140	140	56.9	107
Magnesium	1040	1470	823	617	657	827	651	1090	1100	757
Manganese	184	274	209	110	29.6	293	190	11700	3500	424
Mercury	2.4K	2.9K	1.5K	0.16K	3.1K	2.7K	1.7K	0.32K	0.17K	0.49K
Nickel	348	113	139	21.7	31.3	85.7	114	39.8	21.5	20.0
Potassium	252	165	439	496	386	458	304	834	863	283
Selenium	0.48	0.88	1.3	0.28	1.7L	0.90L	0.87L	1.6	0.88L	0.24L
Silver	6.3	2.2	7.8	0.83	6.1	25.4	23.2	2.4	0.80	3.1
Sodium	101	167	106	92.9	143	107	103	97.0	65.0	65.2
Thallium								1.2		
Vanadium	13.2	12.5	23.6	18.5	14.5	15.7	16.7	18.9	14.9	11.0
Zinc	1200J	2070J	5270J	524J	218J	1770J	1950J	249J	145J	2780J
Cyanide	2.1L	35.3L	0.46L	0.21R	1.1L	1.2L	1.1L	1.0L	0.58L	0.48L

Soil Pesticide/PCB Results for Barefoot Disposal
Results reported as ug/Kg

Parameter	S-1	B-1	S-2	B-2	S-3	S-4	S-6	S-5	S-7	S-8
alpha-BHC										
beta-BHC										
delta-BHC										
gamma-BHC(lindane)										
Heptachlor										
Aldrin										
Heptachlor Epoxide										
Endosulfan I										
Dieldrin										
4,4'-DDE										
Endrin										
Endosulfan II										
4,4'-DDD			83.0			100				
Endosulfan Sulfate										
4,4'DDT										
Methoxychlor										
Endrin Ketone										
alpha-Chlordane										
gamma-Chlordane										
Toxaphene										
Arochlor-1016										
Arochlor-1221										
Arochlor-1232										
Arochlor-1242										
Arochlor-1248										
Arochlor-1254	3100J	2000J								
Arochlor-1260					1100J					

Water Volatile Organic Results for Barefoot Sanitary Services
Results reported as ug/L

Parameter	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8 Field Bl	R-9
Chloromethane									
Bromomethane									
Vinyl chloride									
Chloroethane									
Methylene chloride									
Acetone									
Carbon disulfide									
1,1-Dichloroethene	7	13							
1,1-Dichloroethane	4J	6							
Total 1,2-Dichloroethene									
Chloroform									
1,2-Dichloroethane									
2-Butanone									
1,1,1-Trichloroethane	38	63			1J				
Carbon tetrachloride									
Vinyl acetate									
Bromodichloromethane									
1,2-Dichloropropane									
cis-1,2-Dichloropropane									
Trichloroethene	3J	10							
Dibromchloromethane									
1,1,2-Trichloroethane									
Benzene									
Trans-1,3-dichloropropane									
Bromoform									
4-Methyl-2-pentanone									
2-Hexanone									
Tetrachloroethene									
1,1,2,2-Tetrachloroethane									
Toluene									
Chlorobenzene									
Ethylbenzene									
Styrene									
Total nes									

100051

Water Volatile Organic Results for Barefoot Sanitary Services
Results reported as ug/L

Parameter	R-10	R-11	R-12	R-13	R-14	R-15	R-16	R-17	R-18
Chloromethane									
Bromomethane									
Vinyl chloride									
Chloroethane									
Methylene chloride									
Acetone									
Carbon disulfide									
1,1-Dichloroethene									
1,1-Dichloroethane									
Total 1,2-Dichloroethene					3J				
Chloroform	22								
1,2-Dichloroethane									
2-Butanone									
1,1,1-Trichloroethane				2J	16				
Carbon tetrachloride									
Vinyl acetate									
Bromodichloromethane	2J								
1,2-Dichloropropane									
cis-1,2-Dichloropropane									
Trichloroethene					3J				
Dibromchloromethane									
1,1,2-Trichloroethane									
Benzene									
Trans-1,3-dichloropropane									
Bromoform									
4-Methyl-2-pentanone									
2-Hexanone									
Tetrachloroethene									
1,1,2,2-Tetrachloroethane					0.5J				
Toluene									
Chlorobenzene									
Ethylbenzene									
Styrene									
Total xylenes									

100052

Water Volatile Organic Results for Barefoot Sanitary Services
Results reported as ug/L

Parameter	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26
Chloromethane								
Bromomethane								
Vinyl chloride								
Chloroethane								
Methylene chloride								
Acetone								
Carbon disulfide								
1,1-Dichloroethene							4J	
1,1-Dichloroethane								
Total 1,2-Dichloroethene								
Chloroform								
1,2-Dichloroethane								
2-Butanone								
1,1,1-Trichloroethane							29	
Carbon tetrachloride								
Vinyl acetate								
Bromodichloromethane								
1,2-Dichloropropane								
cis-1,2-Dichloropropane								
Trichloroethene								
Dibromchloromethane								
1,1,2-Trichloroethane								
Benzene								
Trans-1,3-dichloropropane								
Bromoform								
4-Methyl-2-pentanone								
2-Hexanone								
Tetrachloroethene								
1,1,2,2-Tetrachloroethane								
Toluene								
Chlorobenzene								
Ethylbenzene								
Styrene								
Total nes								

100053

Water Metal Results for Barefoot Sanitary Services
Results reported in mg/L

Parameter	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8 BLANK	R-9	R-10
Aluminum		37.4				6.5	8.8		20.0	4.6
Antimony										
Arsenic		1.0		1.0						
Barium	14.4	23.8	48.4	25.4	19.9	133	121		117	34.8
Beryllium										
Cadmium										
Calcium	36600	35000	53800	63700	29800	48500	80300	40.3	88200	37500.0
Chromium										
Cobalt										
Copper	5.1		15.5	7.0	3.2	30.9	10.0			77.7
Iron										
Lead								1.0		
Magnesium	1370	3250	7210	7560	1230	10800	10600		51700	14800.0
Manganese				1.6					1.3	
Mercury										
Nickel									5.0	
Potassium	561	721	2410	1710	737	2290	1520		1810	925
Selenium										
Silver										
Sodium	1350	2700	30800	2210	5320	3420	2940	62.7	27700	9500
Thallium										
Vanadium						3.0	4.2		8.5	
Zinc								50.2		
Cyanide										

Water Metal Results for Barefoot Sanitary Services
Results reported in mg/L

Parameter	R-11	R-12	R-13	R-14	R-15	R-16	R-17	R-18	R-19	R-20
Aluminum			118		24.5	20.4	24.4			
Antimony										
Arsenic	1.0	1.0		1.0	1.0					
Barium	48.4	75.9	78.9	24.2	136	195	151	59.6	84.8	117
Beryllium										
Cadmium										
Calcium	47500	32000	47600	34500	66600	69100	58800	58500	44400	54400
Chromium										
Cobalt										
Copper	20.5	7.6		136			10.1	10.2	20.5	
Iron					230					297
Lead										
Magnesium	3990	4350	9950	14600	14500	10400	9510	4370	7100	8450
Manganese	1.6			1.1	11.8	1.1	4.2	50.0	20.0	10.2
Mercury										
Nickel							4.9	11.8	6.3	6.1
Potassium	895	929	661	942	1370	1280	1010	839	779	929
Selenium										
Silver					4.0		2.6			
Sodium	3690	1610	701	1200	4070	3890	2260	3030	2460	2920
Thallium										
Vanadium					5.3	4.0	4.9	6.8		
Zinc				482J						
Cyanide										

Water Metal Results for Barefoot Sanitary Services
Results reported in mg/L

Parameter	R-21	R-22	R-23	R-24	R-25	R-26
Aluminum						
Antimony						
Arsenic						
Barium	35.1	54.8	33.8	8.6	12.8	48.6
Beryllium						
Cadmium						
Calcium	62100	42300	36400	35900	31400	44000
Chromium	6.3					
Cobalt						
Copper	63.1	8.0	6.8	24.3	21.6	
Iron						
Lead	17.3					
Magnesium	10200	5610	3360	1220	1170	12100
Manganese		4.9				5.8
Mercury						
Nickel						
Potassium	1640	922	677	798	597	1380
Selenium						
Silver						
Sodium	2410	1520	1170	1520	1270	3150
Thallium						
Vanadium						
Zinc						
Cyanide						

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : October 18, 1990

SUBJECT: Organic Data Validation for the Barefoot Disposal Site
Case 14665

FROM : Dan V. Slizys DS
Region III Acting ESAT DPO (3ES23)

TO : Marjorie Easton
Regional Project Manager (3HW32)

THRU : Patricia J. Krantz, Chief DS
Quality Assurance Branch (3ES23)

Attached is the organic data review for the Barefoot Disposal Site (Case 14665) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me.

Attachment

cc: Chuck Fisher, Weston, WV

TID File: 03900817 Task 2111

WESTON
MANAGERS ENGINEERS CONSULTANTS
2568A RIVA ROAD
SUITE 300
ANNAPOLIS, MD 21401
PHONE: 301-266-9587

DATE: 11 October 1990

SUBJECT: ORGANIC DATA VALIDATION FOR CASE 14665
Site: Barefoot Disposal

FROM: DOUG McINNES DM
ORGANIC DATA REVIEWER

DON O'BRIEN DOB
ORGANIC DATA REVIEWER

TO: DAN SLIZYS
ESAT DEPUTY PROJECT OFFICER (acting)

THRU: RICHARD DRESSER
ESAT TEAM MANAGER RDD

OVERVIEW

Case 14665 consisted of twenty-six (26) water samples and ten (10) soil samples, submitted to CLAYTN for volatile analysis of all samples, and pesticide/PCB analysis of the soil samples. Included in this case was one (1) aqueous blank that was analyzed for volatiles only. The samples were analyzed as a Contract Laboratory Program (CLP) Routine Analytical Service (RAS).

SUMMARY

All samples were successfully analyzed for all target compounds. All instrument and method sensitivities were according to the Contract Laboratory Program (CLP) Routine Analytical Service (RAS) protocol.

MINOR PROBLEMS

- The volatile analyses of all soil samples were performed eight (8) to fifteen (15) days from the date of sample collection. Although no technical holding time has been established for soil samples, the technical holding time for aromatic volatile compounds in water samples of seven (7) days has been exceeded by one (1) to eight (8) days for all soil samples; and the technical holding time for all organic compounds of fourteen (14) days from the date of sample collection has been exceeded by one (1) day, for sample CDA51. The quantitation limits for the aromatic volatile compounds for all soil samples, and all volatile compounds for sample CDA51 have been qualified "UL", unless superseded by the "UJ" qualifier. The reported results for aromatic volatiles in all samples, and all volatile compounds for sample CDA51 have been qualified "L", unless superseded by the "J" or "B" qualifiers. (See Appendix F).

WESTON

- One or more volatile surrogate recoveries were outside of the QC limits for soil samples CDA52, CDA55, and CDA56. All samples were re-analyzed with no improvement in surrogate recovery for any sample but CDA52. For sample CDA52 the re-analysis had acceptable surrogate recoveries. The re-analysis results were chosen as most representative for this sample, and were reported on the data summary forms. The reported results and quantitation limits for samples CDA55 and CDA56 have been qualified "J" and "UJ", respectively, unless superseded by the "B" qualifier. (See Appendix F).

- For several soil samples, one or more of the volatile internal standard areas were outside of the QC limits. All samples were re-analyzed with the exception of samples CDA57, CDA57MS, and CDA57MSD; or were re-analyses required by another QC problem. The reported results and quantitation limits quantitated on these internal standards have been qualified "J" and "UJ", respectively, unless superseded by the "B" qualifier. (See Appendix F).

- Since several soil samples were analyzed for volatiles more than once, based on the QC problems noted previously, the most representative data for each sample has been reported on the data summary forms. The table below is a summary of the samples analyzed more than once, indicating the analysis chosen as the most representative, and the reasons why that analysis was chosen.

Reported Sample	Surrogates 1st / RE	Internal Standards 1st / RE
	(Number of outliers per Analysis)	
CDA52RE	1 / 0*	1 / 1
CDA55	2 / 2	1* / 2
CDA56	1 / 1	0* / 1

* - Values marked with an asterisk are the determining factor(s) used to decide which analysis is more representative.

WESTON

- Several compounds failed precision criteria for initial and/or continuing calibrations. Quantitation limits for these compounds were qualified "UJ", and reported results were qualified "J", except when superseded by the "B" qualifier, denoting blank contamination. (See Appendix F).

NOTES

- The maximum concentration of contaminants found in the field blanks or method blanks are summarized in the table below. All samples with concentrations of these common laboratory contaminants less than ten times (<10X) the blank concentration have been qualified "B" in the data summary. (See Appendix F).

Compound	Concentration
methylene chloride *	7 µg/L or µg/Kg
acetone *	23 µg/L or µg/Kg

* - Common Laboratory Contaminant

- Due to GPC cleanup of some of the pesticide/PCB samples, and medium concentration preparation/analysis of several samples, the dilution factors reported on the data summary forms may not match the dilution factors reported on the Form I's.

- The volatile analyses of sample CDA51, CDA51MS, and CDA51MSD had no recovery of the surrogates, due to the 2000-fold dilution required to quantitate trichloroethene within the calibration range. The extraction efficiency for these analyses cannot be confirmed. (See Appendix F).

- During the initial analysis of sample CDA52, acetone was determined at a concentration greater than the calibration range. Upon re-analysis, the acetone result was within the calibration range without dilution. Since acetone is a blank contaminant for this group of samples, and because the analysis and re-analysis were run on the same day, it is unlikely that the reduction in the concentration of acetone is due to loss of analyte from the sample. Since the reported results from the re-analysis have been chosen as most representative for this sample due to other QC problems, no dilute analysis is required for this sample. (See Appendix F).

WESTON

- The pesticide/PCB extractions of the soil samples extracted by the low level protocol were performed nine (9) days from the date of sample collection. Although no technical holding time for pesticide/PCB extraction has been established for soil samples, the technical holding time for pesticide/PCB extraction of water samples of seven (7) days has been exceeded by two (2) days. No data has been qualified based on this problem. (See Appendix F).

- The MS/MSD analyses had compounds other than the spiking compounds or blank contaminants present. Following is a table of results and precision estimates for these non-spiked compounds:

MS/MSD Non-Spiked Compounds

	Concentration (ug/Kg)			
Compound	CDA51	CDA51MS	CDA51MSD	%RSD
total-1,2-dichloroethene	1400000 J	830000 J	970000 J	28
Aroclor 1254	2000 J	2000 J	2000 J	0

	Concentration (ug/L)			
Compound	CDA84	CDA84MS	CDA84MSD	%RSD
1,1,1-trichloroethane	29	27	28	4

%RSD - Percent Relative Standard Deviation

- The reported Tentatively Identified Compounds (TIC's) in Appendix D have been reviewed and accepted during data validation. (See Appendix D).

All data for case 14665 were reviewed in accordance with the Functional Guidelines for Evaluating Organic Analyses with Modifications for use within Region III. The text of this report addresses only those problems affecting usability.

ATTACHMENTS

1) Appendix A - Glossary of Data Qualifiers
2) Appendix B - Data Summary. These include:
   (a) All positive results for target compounds with qualifier codes where applicable.
   (b) All unusable detection limits (qualified "R").
3) Appendix C - Results as Reported by the Laboratory for All Target Compounds
4) Appendix D - Reviewed and Corrected Tentatively Identified Compounds
5) Appendix E - Organic Regional Data Assessment Summary
6) Appendix F - Support Documentation

DCN - DM009A15

GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATING TO IDENTIFICATION
(confidence concerning presence or absence of compounds):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

revised 01/90

100063

WESTON

Appendix B

Data Summary Forms

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: BAREFOOT DISPOSAL

WATER SAMPLES
(µg/L)

Case #: 14665 Sampling Date(s): 8/07 - 8/09/90

To calculate sample quantitation limi
(CRQL * Dilution Facto

CRQL	COMPOUND	CDA60		CDA61		CDA62		CDA63		CDA64		CDA65		CDA66		CDA67		CDA68
	Dilution Factor	1		1		1		1		1		1		1		1		1
	Location	R-1		R-2		R-3		R-4		R-5		R-6		R-7		R-8 (Field Blank)		R-9
10	Chloromethane																	
10	Bromomethane																	
10	*Vinyl Chloride																	
10	Chloroethane																	
5	*Methylene Chloride	2	B			2	B			3	B	3	B	3	B			
10	Acetone		HJ		HJ		HJ		HJ		HJ		HJ		HJ	13	B	
5	Carbon Disulfide																	
5	*1,1-Dichloroethene	7		13														
5	1,1-Dichloroethane	4	J	6														
5	*Total 1,2-Dichloroethene																	
5	Chloroform																	
5	*1,2-Dichloroethane																	
10	*2-Butanone																	
5	*1,1,1-Trichloroethane	38		63						1	J							
5	*Carbon Tetrachloride																	
10	Vinyl Acetate																	
5	Bromodichloromethane																	

100065

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINI

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: BAREFOOT DISPOSAL

WATER SAMPLES
(µg/L)

Case #: 14665 Sampling Date(s): 8/07-8/09/90

To calculate sample quantitation limi
(CRQL * Dilution Facto

100066

CRQL	COMPOUND	CDA60	CDA61	CDA62	CDA63	CDA64	CDA65	CDA66	CDA67	CDA68
	Sample No.	CDA60	CDA61	CDA62	CDA63	CDA64	CDA65	CDA66	CDA67	CDA68
	Dilution Factor	1	1	1	1	1	1	1	1	1
	Location	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8 (FIELD BLANK)	R-9
5	*1,2-Dichloropropane									
5	Cis-1,3-Dichloropropane									
5	Trichloroethene	3 J	10							
5	Dibromochloromethane									
5	1,1,2-Trichloroethane									
5	*Benzene									
5	Trans-1,3-Dichloropropene									
5	Bromoform									
10	4-Methyl-2-pentanone									
10	2-Hexanone									
5	*Tetrachloroethene									
5	1,1,2,2-Tetrachloroethane									
5	*Toluene									
5	*Chlorobenzene									
5	*Ethylbenzene									
5	*Styrene									
5	*Total Xylenes									

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FO.. CODE DEFINITI

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: BAREFOOT DISPOSAL

Case #: 11165 Sampling Date(s): 7/09 - 8/09/90

WATER SAMPLES
(µg/L)

To calculate sample quantitation limi
(CRQL * Dilution Facto

100067

CRQL	COMPOUND	CDA69		CDA70		CDA71		CDA72		CDA73		CDA74		CDA75		CDA76		CDA77	
	Dilution factor	1		1		1		1		1		1		1		1		1	
	Location	R-10		R-11		R-12		R-13		R-14		R-15		R-16		R-17		R-18	
10	Chloromethane																		
10	Bromomethane																		
10	*Vinyl Chloride																		
10	Chloroethane																		
5	*Methylene Chloride															5	B	4	
10	Acetone																		
5	Carbon Disulfide																		
5	*1,1-Dichloroethene																		
5	1,1-Dichloroethane																		
5	*Total 1,2-Dichloroethene									3	J								
5	Chloroform	22																	
5	*1,2-Dichloroethane																		
10	*2-Butanone																		
5	*1,1,1-Trichloroethane							2	J	16									
5	*Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane	2	J																

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITI

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: BAREFOOT DISPOSAL

WATER SAMPLES
(µg/L)

Case #: 17665 Sampling Date(s): [illegible]

To calculate sample quantitation limi
(CRQL * Dilution Facto

100068

CRQL	COMPOUND	CDA69	CDA70	CDA71	CDA72	CDA73	CDA74	CDA75	CDA76	CDA7[illegible]
	Dilution Factor	1	1	1	1	1	1	1	1	1
	Location	R-10	R-11	R-12	R-13	R-14	R-15	R-16	R-17	R-18
5	*1,2-Dichloropropane									
5	Cis-1,3-Dichloropropane									
5	Trichloroethene					3 J				
5	Dibromochloromethane									
5	1,1,2-Trichlorethane									
5	*Benzene									
5	Trans-1,3-Dichloropropene									
5	Bromoform									
10	4-Methyl-2-pentanone									
10	2-Hexanone	4J	4J	4J	4J	4J		4J		
5	*Tetrachloroethene									
5	1,1,2,2-Tetrachloroethane					0.5 J				
5	*Toluene									
5	*Chlorobenzene									
5	*Ethylbenzene									
5	*Styrene									
5	*Total Xylenes									

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE F... CODE DEFINIT
revie

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: BAREFOOT DISPOSAL

Case #: 14665 Sampling Date(s): 8/07 - 8/09/90

WATER SAMPLES
(ug/L)

To calculate sample quantitation limi
(CRQL * Dilution Facto

100069

CRQL	COMPOUND	CDA 78		CDA 79		CDA 80		CDA 81		CDA 82		CDA 83		CDA 84		CDA 85			
	Sample No.	CDA 78		CDA 79		CDA 80		CDA 81		CDA 82		CDA 83		CDA 84		CDA 85			
	Dilution Factor	1		1		1		1		1		1		1		1			
	Location	R-19		R-20		R-21		R-22		R-23		R-24		R-25		R-26			
10	Chloromethane																		
10	Bromomethane																		
10	*Vinyl Chloride																		
10	Chloroethane																		
5	*Methylene Chloride	4	B	4	B	7	B	5	B										
10	Acetone															27	B		
5	Carbon Disulfide																		
5	*1,1-Dichloroethene													4	J				
5	1,1-Dichloroethane																		
5	*Total 1,2-Dichloroethene																		
5	Chloroform																		
5	*1,2-Dichloroethane																		
10	*2-Butanone																		
5	*1,1,1-Trichloroethane													29					
5	*Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRQL = Contract Required Quantitation Limit

Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIO

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: BAREFOOT DISPOSAL

Case #: 14665 Sampling Date(s): 8/07-8/09/90

WATER SAMPLES
(µg/L)

To calculate sample quantitation limi
(CRQL * Dilution Facto

100070

CRQL	COMPOUND	CDH78	CDH79	CDH80	CDH81	CDH82	CDH83	CDH84	CDH85	
	Sample No.	CDH78	CDH79	CDH80	CDH81	CDH82	CDH83	CDH84	CDH85	
	Dilution Factor	1	1	1	1	1	1	1	1	
	Location	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26	
5	*1,2-Dichloropropane									
5	Cis-1,3-Dichloropropene									
5	Trichloroethene									
5	Dibromochloromethane									
5	1,1,2-Trichlorethane									
5	*Benzene									
5	Trans-1,3-Dichloropropene									
5	Bromoform									
10	4-Methyl-2-pentanone									
10	2-Hexanone									
5	*Tetrachloroethene									
5	1,1,2,2-Tetrachloroethane									
5	*Toluene									
5	*Chlorobenzene									
5	*Ethylbenzene									
5	*Styrene									
5	*Total Xylenes									

CRQL = Contract Required Quantitation Limit

*Action Level Exists

SEE NARRATIVE F... CODE DEFINITI

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: BAREFOOT DISPOSAL

Case #: 11665 Sampling Date(s): 8/07 - 8/09/90

SOIL SAMPLES
(µg/Kg)

To calculate sample quantitation limi
(CRQL * Dilution Factor) / ((100 - % moisture)/10

100071

CRQL	COMPOUND	CDH 50		CDH 51		CDH 52		CDH 53		CDH 54		CDH 55		CDH 56		CDH 57		CDH 58	
	Sample No.	CDH 50		CDH 51		CDH 52		CDH 53		CDH 54		CDH 55		CDH 56		CDH 57		CDH 58	
	Dilution Factor	2500 *		250000 *		1		125 *		1		1		1		1		1	
	% Moisture	27		64		57		31		61		61		63		45		36	
	Location	S-1		B-1		S-2		B-2		S-3		S-4		S-6		S-5		S-7	
10	Chloromethane				U				U				U		U				
10	Bromomethane								U										
10	Vinyl Chloride																		
10	Chloroethane																		
5	Methylene Chloride	22000	B	1300000	B	33	B	1200	B	32	B	48	B	31	B	24	B	8	B
10	Acetone	48,000	B	1500000	B	260	B	2500	B	89	B	26	B	210	B			10	B
5	Carbon Disulfide				U	9	J						U		U				
5	1,1-Dichloroethene																		
5	1,1-Dichloroethane	7400	J																
5	Total 1,2-Dichloroethene	250000		1900000	J														
5	Chloroform				U														
5	1,2-Dichloroethane																		
10	2-Butanone					70	J												
5	1,1,1-Trichloroethane																U		
5	Carbon Tetrachloride																		
10	Vinyl Acetate																		
5	Bromodichloromethane																		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITI

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: BAREFOOT DISPOSAL

Case #: 14665 Sampling Date(s): 8/07 - 8/09/85

SOIL SAMPLES
(µg/Kg)

To calculate sample quantitation limi
(CRQL * Dilution Factor) / ((100 - % moisture)/10

100072

CRQL	COMPOUND	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CBA56	[illegible]	[illegible]
	Sample No.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CBA56	[illegible]	[illegible]
	Dilution Factor	2500 *	250000 *	1	125 *	1	1	1	1	1
	% Moisture	29	69	54	31	61	61	63	45	36
	Location	S-1	B-1	S-2	B-2	S-3	S-4	S-6	S-5	S-7
5	1,2-Dichloropropane			U					U	U	U
5	Cis-1,3-Dichloropropene										
5	Trichloroethene	470000	9300000	1	920						
5	Dibromochloromethane			U							
5	1,1,2-Trichloroethane										
5	Benzene	2,400	J			U	U	U			
5	Trans-1,3-Dichloropropene										
5	Bromoform										
10	4-Methyl-2-pentanone					U	U				
10	2-Hexanone					U					
5	Tetrachloroethene										
5	1,1,2,2,-Tetrachloroethane										
5	Toluene	14000	J	[illegible]	J	16	J				
5	Chlorobenzene		U		U		U	U			
5	Ethylbenzene										
5	Styrene										
5	Total Xylenes	7,900	J								

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE F... CODE DEFINITI
revise

DATA SUMMARY FORM: V O L A T I L E S 1

Site Name: BAREFOOT DISPOSAL

Case #: 14665 Sampling Date(s): 8/07 - 8/09/90

SOIL SAMPLES
(µg/Kg)

To calculate sample quantitation lim
(CRQL * Dilution Factor) / ((100 - % moisture)/1

100073

CRQL	COMPOUND																				
	Sample No.	CBA59																			
	Dilution Factor	1																			
	% Moisture	17																			
	Location	S-8																			
10	Chloromethane																				
10	Bromomethane																				
10	Vinyl Chloride																				
10	Chloroethane																				
5	Methylene Chloride	24	B																		
10	Acetone	10	B																		
5	Carbon Disulfide																				
5	1,1-Dichloroethene																				
5	1,1-Dichloroethane																				
5	Total 1,2-Dichloroethene																				
5	Chloroform																				
5	1,2-Dichloroethane																				
10	2-Butanone																				
5	1,1,1-Trichloroethane																				
5	Carbon Tetrachloride																				
10	Vinyl Acetate																				
5	Bromodichloromethane																				

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITI

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: BAREFOOT DISPOSAL

SOIL SAMPLES
(µg/Kg)

Case #: 14665 Sampling Date(s): 8/07 - 8/09/90

To calculate sample quantitation limi
(CRQL * Dilution Factor) / ((100 - % moisture)/10

100074

CRQL	COMPOUND	CDA59	
	Sample No.	CDA59	
	Dilution Factor	1	
	% Moisture	17	
	Location	S-8	
5	1,2-Dichloropropane		
5	Cis-1,3-Dichloropropene		
5	Trichloroethene		
5	Dibromochloromethane		
5	1,1,2-Trichloroethane		
5	Benzene		U
5	Trans-1,3-Dichloropropene		
5	Bromoform		
10	4-Methyl-2-pentanone		
10	2-Hexanone		
5	Tetrachloroethene		
5	1,1,2,2,-Tetrachloroethane		
5	Toluene		U
5	Chlorobenzene		
5	Ethylbenzene		
5	Styrene		
5	Total Xylenes		

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE F CODE DEFINITI
revised

DATA SUMMARY FORM: PESTICIDES AND PCB'S

Site Name: BAREFOOT DISPOSAL

SOIL SAMPLES
(µg/Kg)

Case #: 11165 Sampling Date(s): 8/27 - 8/29/90

To calculate sample quantitation lim
(CRQL * Dilution Factor) / ((100 - % moisture)/1

1000075

CRQL	COMPOUND	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
	Sample No.	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]	
	Dilution Factor	15 *		15 *		2		2		15 *		2		15 *		2		2	
	Location	S-1		B-1		S-2		B-1		S-3		S-4		S-6		S-5		S-7	
	% MOISTURE	27		64		54		31		61		59		63		45		36	
8	alpha-BHC																		
8	beta-BHC																		
8	delta-BHC																		
8	gamma-BHC (Lindane)																		
8	Heptachlor																		
8	Aldrin																		
8	Heptachlor Epoxide																		
8	Endosulfan I																		
16	Dieldrin																		
16	4,4'-DDE																		
16	Endrin																		
16	Endosulfan II																		
16	4,4'-DDD					8.3						100							
16	Endosulfan Sulfate																		
16	4,4'-DDT																		
80	Methoxychlor																		
16	Endrin Ketone																		
80	alpha-Chlordane																		
80	gamma-Chlordane																		
160	Toxaphene																		
80	Aroclor-1016																		
80	Aroclor-1221																		
80	Aroclor-1232																		
80	Aroclor-1242																		
80	Aroclor-1248																		
160	Aroclor-1254	3100	J	1000	J														
160	Aroclor-1260											1100	J						

[illegible] Quantitation Limit

SEE NARRATIVE FOR CODE DEFIN

DATA SUMMARY FORM: PESTICIDES AND PCB'S

Site Name: BARETOOT DISPOSAL

SOIL SAMPLES
(µg/Kg)

Case #: M1665 Sampling Date(s): 8/[illegible] 8/[illegible]/90

To calculate sample quantitation lim
(CRQL * Dilution Factor) / ((100 - % moisture)/1

100076

CRQL	COMPOUND									
	Sample No.	CDA 59								
	Dilution Factor	2								
	Location	S-8								
	% moisture	17								
8	alpha-BHC									
8	beta-BHC									
8	delta-BHC									
8	gamma-BHC (Lindane)									
8	Heptachlor									
8	Aldrin									
8	Heptachlor Epoxide									
8	Endosulfan I									
16	Dieldrin									
16	4,4'-DDE									
16	Endrin									
16	Endosulfan II									
16	4,4'-DDD									
16	Endosulfan Sulfate									
16	4,4'-DDT									
80	Methoxychlor									
16	Endrin Ketone									
80	alpha-Chlordane									
80	gamma-Chlordane									
160	Toxaphene									
80	Aroclor-1016									
80	Aroclor-1221									
80	Aroclor-1232									
80	Aroclor-1242									
80	Aroclor-1248									
160	[illegible]lor-1254									
160	[illegible]lor-1260									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINIT

revi-

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : October 9, 1990

SUBJECT: Inorganic Data Validation for the Barefoot Disposal Site
Case 14665

FROM : Dan V. Slizys DS
Region III Acting ESAT DPO (3ES23)

TO : Marjorie Easton
Regional Project Manager (3HW32)

THRU : Patricia J. Krantz, Chief DS
Quality Assurance Branch (3ES23)

Attached is the inorganic data review for the Barefoot Disposal Site (Case 14665) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me.

Attachment

cc: Chuck Fisher, Weston, WV

TID File: 03900819 Task 2112

100077

WESTON
MANAGERS DESIGNERS CONSULTANTS
2568A RIVA ROAD
SUITE 300
ANNAPOLIS, MD 21401
PHONE 301-266-9887

DATE: 8 OCTOBER 1990

SUBJECT: INORGANIC DATA VALIDATION, Case 14665
SITE: BAREFOOT DISPOSAL

FROM: MAHBOOBEH MECANIC MM
SR. DATA REVIEWER

MARSHA BURRELL
SR. DATA REVIEWER

TO: DANIEL SLIZYS
ACTING ESAT DEPUTY PROJECT OFFICER

THRU: RICHARD D. DRESSER
ESAT TEAM MANAGER

OVERVIEW

The set of samples for Case 14665 contained twenty-six (26) filtered aqueous and ten (10) soil samples which were analyzed through the Contract Laboratory Program (CLP) Routine Analytical Service (RAS). The samples were analyzed under three (3) sample delivery groups (SDG's) and the data were submitted as three (3) separate and complete data packages. The list of samples analyzed under each SDG is shown below:

SDG Number	Sample Numbers
MCFB01	MCFB01-MCFB10
MCFB11	MCFB11-MCFB30
MCFB31	MCFB31-MCFB36

The sample set contained one (1) filtered field blank. The EPA advisory level for soil samples was exceeded for the Pb analyte in several samples. (See Table 3).

SUMMARY

All analytes were successfully analyzed in all samples with the exception of CN^- in the soil samples. Areas of concern with respect to data usability are listed according to the seriousness of the problem. These include:

MAJOR PROBLEM

The soil matrix spike recovery was extremely low (<30%) for the CN^- analyte. The quantitation limit and reported results for CN^- in the soil samples may be biased extremely low and, therefore, they have been qualified "R" (unreliable) and "L", respectively.

MINOR ISSUES

The filtered preparation blanks and/or the filtered field blank had results that were greater than IDL for the Al, Fe, Pb and Zn analytes. The reported results for these analytes which are less than five times (<5X) the highest blank concentration may be biased high and, therefore, they have been qualified "B" on the data summary forms.

The ICP Serial dilution result exceeded the 10% control limit for the Zn analyte in the soil (SDG MCFB01) and filtered (SDG MCFB11) samples. The reported results for the Zn analyte in the affected samples are qualified estimated, "J", except when superseded by the "B" qualifier due to blank contamination.

Replicate method of standard addition (MSA) analyses were performed for the As analyte in sample MCFB04. Both the correlation coefficient of the MSAs were <0.995. Therefore, the reported result for As in sample MCFB04 has been qualified estimated, "J".

The soil matrix spike recovery was extremely low for the As analyte. The reported results for As in the soil samples may be biased extremely low and, therefore, they have been qualified "L", except for sample MCFB04 which has been qualified "J" as previously mentioned.

The soil matrix spike recovery was high for the Hg analyte. The reported results for Hg in the soil samples may be biased high and, therefore, they have been qualified "K".

Several samples had low analytical spike recoveries for the Pb, Se, and Tl analytes. The quantitation limits and reported results for these analytes in the affected samples may be biased low and, therefore, they have been qualified "UL" and "L", respectively; excluding reported result for Pb in sample MCFB22 which has been qualified "B" due to blank contamination.

WESTON

NOTE:

All data were reviewed in accordance with National Functional guidelines for Evaluating Inorganic Analyses.

INFORMATION REGARDING REPORT CONTENT

Table 1A is a summary of qualifiers added to the laboratory's results during evaluation.

ATTACHMENTS

TABLE 1A	SUMMARY OF QUALIFIERS ON DATA SUMMARY AFTER DATA VALIDATION
TABLE 1B	CODES USED IN COMMENTS COLUMN
TABLE 2	GLOSSARY OF DATA QUALIFIER CODES
TABLE 3	LIST OF SAMPLES EXCEEDING THE LEAD ACTION LEVEL
TABLE 4	DATA SUMMARY FORMS
APPENDIX A	RESULTS REPORTED BY LABORATORY FORM I's
APPENDIX B	TPO REPORT
APPENDIX C	SUPPORT DOCUMENTATION

MM010A01.BAR

WESTON

TABLE 1A

SUMMARY OF QUALIFIERS ON DATA SUMMARY
AFTER DATA VALIDATION

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
Al	MCFB31	B		High	A (22.5 ppb)
As	All soil samples except MCFB04	L		Extremely Low	B (29.2%)
	MCFB04	J			C (0.9783) B (29.2%)
Fe	MCFB12, MCFB13, MCFB23, MCBF24 MCFB28, MCFB29	B		High	A (34.9 ppb)
	MCFB31, MCFB32, MCFB33, MCFB36	B		High	A (62.7 ppb)
Pb	MCFB12 - MCFB14 MCFB24, MCFB28 - MCFB30, MCFB35, MCFB36	B		High	D (1.0 ppb)
	MCFB22	B		High	D (1.0 ppb) E (72.0%)
Hg	All soil samples	K		High	F (193%)
Se	MCFB05 - MCFB07 MCFB09, MCFB10	L		Low	E (70.0-80.0%)
Tl	MCFB13, MCFB30		UL	Low	E (75.0-80.0%)
Zn	All soil samples	J			G (11.7%)
	All filtered samples in SDG MCFB11 except MCFB18 and MCFB24	B		High	D (50.2 ppb) G (31.5%)
	MCFB24	J			G (31.5%)
	MCFB31 - MCFB36	B		High	A (50.2 ppb)

* See explanation of comments in Table 1B.

WESTON

TABLE 1A (Con't)

SUMMARY OF QUALIFIERS ON DATA SUMMARY
AFTER DATA VALIDATION

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
CN^-	All soil samples	L	R	Extremely Low	B (0%)

* See explanation of comments in Table 1B.

WESTON

TABLE 1B

CODES USED IN COMMENTS COLUMN

A = The preparation blank had a result >IDL (the result is in parentheses) and the reported results were <5x the blank. The reported results may be biased high.

B = Due to an extremely low matrix spike recovery (% recovery is in parentheses), the quantitation limits and reported results may be biased extremely low.

C = Both the correlation coefficient of the MSAs were <0.995 (highest value is in parentheses), therefore, the reported result is estimated.

D = The field blank had a result >IDL (the result is in parentheses) and the reported results were <5x the blank. The reported results may be biased high.

E = Due to a low analytical spike recovery (% recovery is in parentheses), the quantitation limits and reported results may be biased low.

F = Due to a high matrix spike recovery (% recovery is in parentheses), the reported results may be biased high.

G = The percent difference (%D) of the ICP serial dilution result exceeded the 10% control limit (%D is in parentheses). Therefore, the reported results are estimated.

WESTON

TABLE 2

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

WESTON

TABLE 3

SUMMARY OF SAMPLES EXCEEDING PB ACTION LEVEL

Sample	Reported Result	Action Level (mg/Kg)
MCFB01	1090	500
MCFB02	630	500
MCFB03	887	500
MCFB05	967	500
MCFB06	903	500
MCFB07	1140	500

Table 4

DATA SUMMARY FORM: I N O R G A N I C S

SOIL SAMPLES
(mg/Kg)

Site Name: Barefoot Disposal

Case #: 14665 Sampling Date(s): 8/7/90

+Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

CRDL	Sample No.	MCFB01		MCFB02		MCFB03		MCFB04		MCFB05		MCFB06		MCFB07		MCFB08		MCFB09		MCFB10	
	Dilution Factor	1		1		1		1		1		1		1		1		1		1	
	% Solids	82.5		45.7		53.8		72.7		35.8		44.5		45.5		48.8		68.4		83.2	
	Location	AREA-1		AREA-1		AREA-2		AREA-2		AREA-3		AREA-4		AREA-4		AREA-5		AREA-7		AREA-8	
CRDL	ANALYTE																				
40	Aluminum	5160		3650		5440		7450		7390		3460		2330		9270		5530		2470	
12	Antimony	20.9		[13.9]		71.8		[13.2]		[15.0]		83.4		147		[16.4]		[8.4]		16.2	
2	*Arsenic	22.6	L	14.1	L	18.0	L	3.5	J	14.6	L	8.1	L	14.5	L	20.5	L	6.4	L	4.2	L
40	Barium	1250		557		510		153		470		873		719		639		230		265	
1	Beryllium	[0.92]		[0.58]		[0.76]		[0.54]		[1.9]		[0.62]		[0.65]		2.3		[1.1]		[0.32]	
1	*Cadmium	172		56.2		81.9		6.1		19.8		8.4		8.6		4.4		2.2		12.1	
1000	Calcium	10100		10100		12700		2310		3920		4860		4470		12400		7600		3600	
2	*Chromium	423		104		5220		375		145		1210		13200		23.1		8.7		216	
10	Cobalt	23.5		[18.5]		25.9		[8.3]		[6.8]		[18.3]		23.2		[14.8]		[9.8]		[7.7]	
5	Copper	1550		633		11500		821		2110		10200		11600		31.1		18.0		211	
20	Iron	25200		26800		31400		15000		26800		[illegible]		30300		15400		116.00		20700	
0.6	*Lead	1090		630		884		54.1		764		923		1140		140		56.9		107	
1000	Magnesium	[1040]		[1470]		[823]		[617]		[657]		[827]		[651]		[1090]		[1100]		[757]	
3	Manganese	184		274		209		110		29.6		293		190		11700		3500		424	
0.2	Mercury	2.4	K	2.9	K	1.5	K	0.16	K	3.1	K	2.7	K	1.7	K	0.32	K	0.17	K	0.49	K
8	*Nickel	348		113		139		21.7		31.3		85.7		114		39.8		21.5		20.0	
1000	Potassium	[252]		[165]		[439]		[496]		[386]		[458]		[304]		[834]		[863]		[283]	
1	Selenium	[0.48]		[0.88]		[1.3]		[0.28]		[1.7]	L	[0.90]	L	[0.87]	L	[1.6]		[0.88]	L	[0.24]	L
2	Silver	6.3		[2.2]		7.8		[0.83]		6.1		25.4		23.2		[2.4]		[0.80]		3.1	
1000	Sodium	[101]		[167]		[106]		[92.9]		[143]		[107]		[105]		[97.0]		[65.0]		[65.2]	
2	Thallium															[1.2]					
10	Vanadium	13.2		[12.5]		23.6		18.5		[14.5]		[15.7]		[16.7]		[18.9]		14.9		[11.0]	
4	Zinc	1200	J	2070	J	5270	J	524	J	218	J	1770	J	1950	J	249	J	145	J	2780	J
2	*Cyanide	2.1	L	35.3	L	[0.46]	L		R	[1.1]	L	1.7	L	1.1	L	1.0	L	[0.58]	L	[0.48]	L

Tanad

DATA SUMMARY FORM: I N O R G A N I C S

Site Name: Barefoot Disposal

WATER SAMPLES
(µg/L)

Case #: 14665 Sampling Date(s): 8/8/90

100287

*Due to dilution, sample quantitation limit is affecte
See dilution table for specific

CRDL	Sample No. / Dilution Factor / Location / ANALYTE	MCFB11 / Johnnie, W / Filtered		MCFB12 / Andrews, B / Filtered		MCFB13 / Leighty, R / Filtered		MCFB14 / Heidler, R / Filtered		MCFB15 / Maldonado / Filtered		MCFB16 / Wilson, B / Filtered		MCFB17 / Link, N / Filtered		MCFB18 / Blank / Field Blank Filtered		MCFB19 / MOORE, L / Filtered		MCFB2 / C Mano / Filtere
200	Aluminum			[37.4]								[6.5]		[8.8]				[20.0]		[9.6]
60	Antimony																			
10	*Arsenic			[1.0]				[1.0]												
200	Barium	[14.4]		[23.8]		[48.4]		[25.4]		[19.9]		[13.3]		[12.1]				[11.7]		[34.8]
5	Beryllium																			
5	*Cadmium																			
5000	Calcium	36600		35000		53800		63700		29800		48500		80300		[40.3]		88200		37500
10	*Chromium																			
50	Cobalt																			
25	Copper	[5.1]				[15.5]		[7.0]		[3.2]		30.9		[10.0]						77.7
100	Iron			[49.2]	B	[41.5]	B													
3	*Lead			[1.6]	B	[1.4]	B	[1.1]	B							[1.0]				
5000	Magnesium	[1370]		[3250]		7210		7560		[1230]		10300		10600				51700		14800
15	Manganese							[1.6]										[1.3]		
0.2	Mercury																			
40	*Nickel																	[5.0]		
5000	Potassium	[561]		[721]		[2410]		[1710]		[737]		[2290]		[1520]				[1810]		[925]
5	Selenium																			
10	Silver																			
5000	Sodium	[1350]		[2700]		[30800]		[2210]		5320		[3420]		[2910]		[62.7]		27700		9500
10	Thallium						|||													
50	Vanadium											[2.0]		[4.2]				[8.5]		
20	Zinc	[3.1]	B	[4.9]	B	22.6	B	635	B	23.1	B	22.1	B	22.6	B	50.2		167	B	[11.1]
10	*Cyanide		Φ		Φ		Φ		Φ		Φ		Φ		Φ		Φ		Φ	

SEE NARRATIVE FOR CODE DEFI

Table 4

DATA SUMMARY FORM: INORGANICS

Site Name: Barefoot Disposal

WATER SAMPLES
(µg/L)

Case #: 14665 Sampling Date(s): 8/8-9/90

*Due to dilution, sample quantitation limit is affecte
See dilution table for specific

CRDL	Sample No. / Dilution Factor / Location / ANALYTE	MCFB21		MCFB22		MCFB23		MCFB24		MCFB25		MCFB26		MCFB27		MCFB28		MCFB29		MCFB3
	Dilution Factor	1		1		1		1		1		1		1		1		1		1
	Location	J. Shaffer		H. Corl		Z. Auto		C. Heidler		G. Sager		S. Clark		D. Detwiler		Well #1		Well #2		Well #3
		Filtered		Filtered		Filtered		Filtered		Filtered		Filtered		Filtered		Filtered		Filtered		Filtered
200	Aluminum					[118]				[24.5]		[20.4]		[24.4]						
60	Antimony																			
10	*Arsenic	[1.0]		[1.0]				[1.0]		[1.0]										
200	Barium	[48.4]		[75.9]		[78.9]		[24.2]		[136]		[195]		[151]		[59.6]		[84.8]		[117]
5	Beryllium																			
5	*Cadmium																			
5000	Calcium	47500		32000		47600		34500		66600		69100		58800		58500		44400		54400
10	*Chromium																			
50	Cobalt																			
25	Copper	[20.5]		7.6				13 A						[10.1]		[10.2]		[20.5]		
100	Iron					[88.0]	B	[41.4]	B	230						[13.9]	B	[75.1]	B	297
3	*Lead			[1.3]	B			[2.5]	B							[2.6]	B	3.7	B	[2.0]
5000	Magnesium	[3990]		4350		9950		14600		14500		10400		9510		[4370]		7100		8450
15	Manganese	[1.6]						[1.1]		[11.8]		[1.1]		[4.2]		50.0		20.0		[10.2]
0.2	Mercury																			
40	*Nickel													[4.9]		[11.8]		[6.3]		[6.1]
5000	Potassium	[895]		[929]		[661]		[992]		[1370]		[1280]		[1010]		[839]		[779]		[929]
5	Selenium																			
10	Silver									[4.0]				[2.6]						
5000	Sodium	[3690]		[1610]		[101]		[1200]		[4070]		[3890]		[2200]		[3030]		[2460]		[2420]
10	Thallium																			
50	Vanadium									[5.3]		[4.0]		[4.9]		[6.8]				
20	Zinc	[11.5]	B	177	B	[11.0]	B	482	J	34.7	B	192	B	104	B	57.8	B	[20.0]	B	80.9
10	*Cyanide		Φ		Φ		Φ		Φ		Φ		Φ		Φ		Φ		Φ	

Ta. 14

DATA SUMMARY FORM: I N O R G A N I C S

Site Name: Barefoot Disposal

WATER SAMPLES
(µg/L)

Case #: 14665 Sampling Date(s): 8/8-9/90

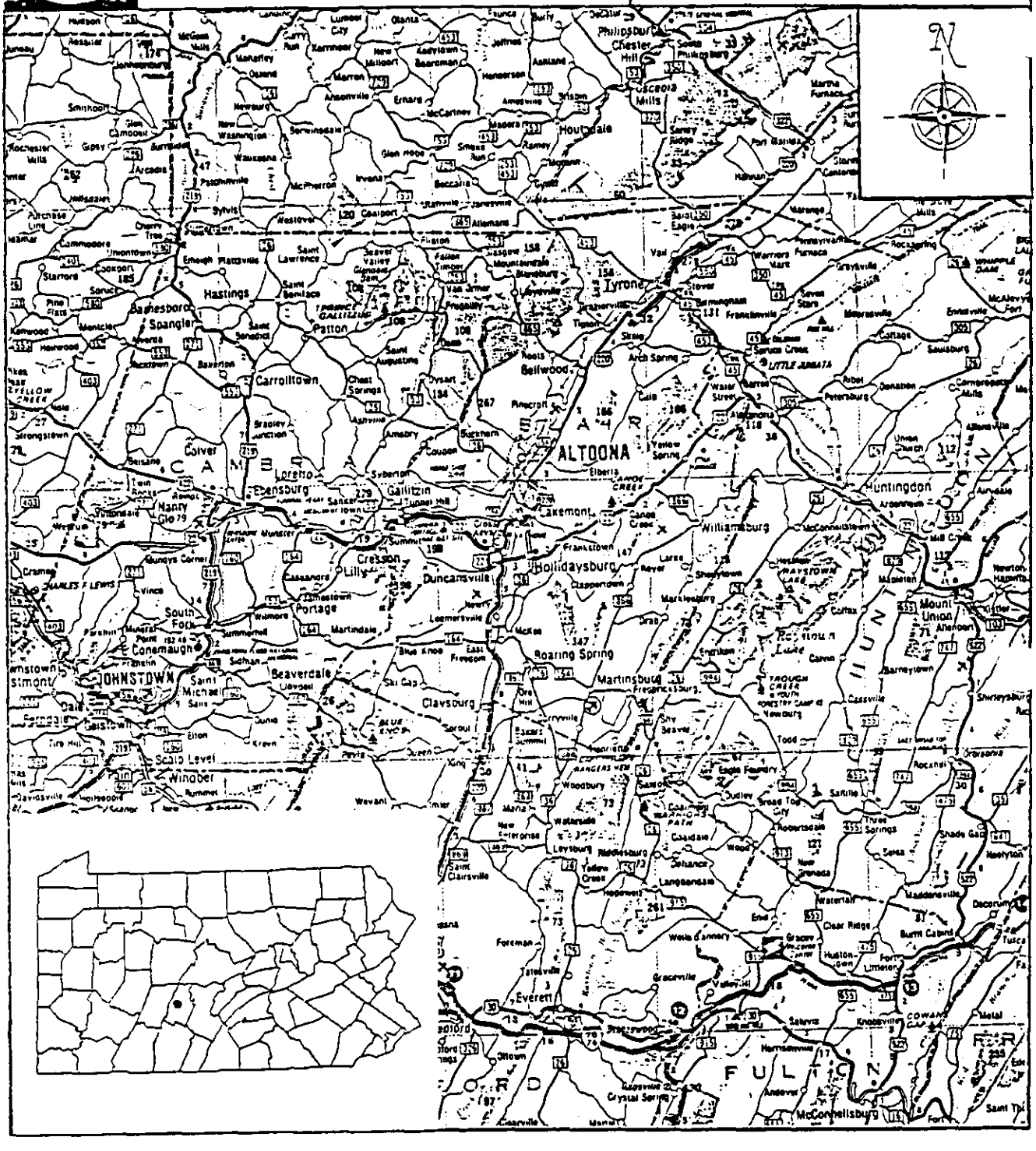
100089

*Due to dilution, sample quantitation limit is affected.
See dilution table for specifics.

CRDL	Sample No. / Dilution Factor / Location / ANALYTE	MCFB31		MCFB32		MCFB33		MCFB34		MCFB35		MCFB36	
	Dilution Factor	1		1		1		1		1		1	
	Location	F. Heyron		D. Shaffer		R. Shaffer		M. Weaver		S. Dodson		M. McCormick	
		Filtered		Filtered		Filtered		Filtered		Filtered		Filtered	
200	Aluminum	[18.0]	B										
60	Antimony												
10	*Arsenic												
200	Barium	[35.1]		[54.8]		[33.8]		[8.6]		[12.8]		[18.6]	
5	Beryllium												
5	*Cadmium												
5000	Calcium	62100		42300		36400		35900		31400		44000	
10	*Chromium	[6.3]											
50	Cobalt												
25	Copper	63.1		[8.0]		[6.8]		[24.3]		[21.6]			
100	Iron	[20.1]	B	[53.5]	B	[47.9]	B					[16.7]	B
3	*Lead	17.3								[1.1]	B	[1.1]	B
5000	Magnesium	10200		5610		[3360]		[1220]		[1170]		12100	
15	Manganese			[4.9]								[5.8]	
0.2	Mercury												
40	*Nickel												
5000	Potassium	[16.40]		[922]		[671]		[798]		[591]		[1130]	
5	Selenium												
10	Silver												
5000	Sodium	[2410]		[1520]		[1170]		[1520]		[1070]		[3150]	
10	Thallium												
50	Vanadium												
20	Zinc	41.2	B	[6.8]	B	[9.9]	B	27.1	B	134	B	[15.8]	B
10	*Cyanide		Q		Q		Q		Q		Q		Q

WESTON · MPD

TDD Number: 9010-105
PCS Number: 1105

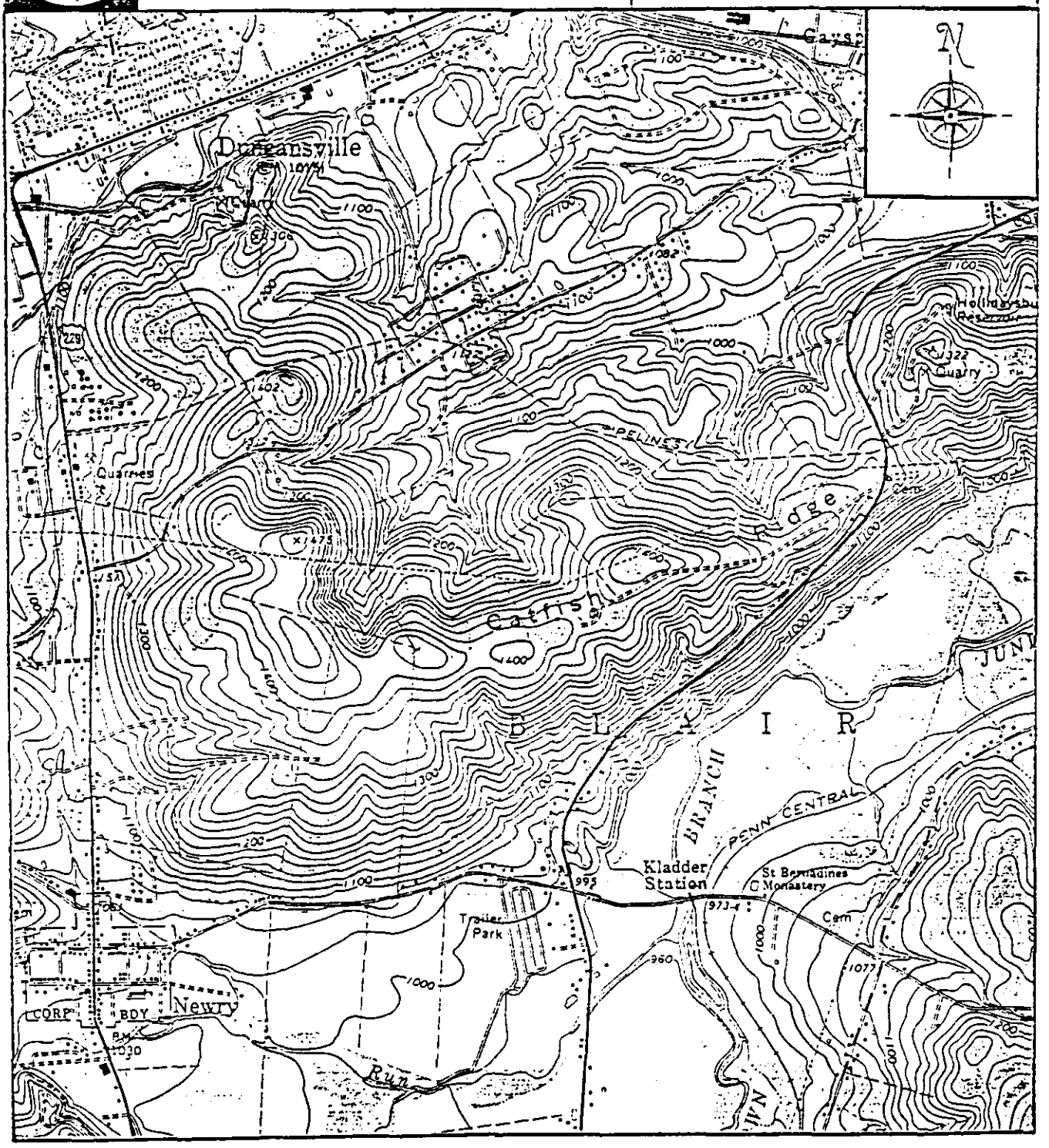


SITE LOCATION MAP
Barefoot Sanitary Services
Hollidaysburg, Blair County, PA

100090

WESTON · MPD

TDD Number: **9010-105**
FCS Number: **1105**



SITE LOCATION MAP

(Hollidaysburg Quadrangle)

100091

Barefoot Sanitary Services
Hollidaysburg, Blair County, PA

SCALE 1:24 000

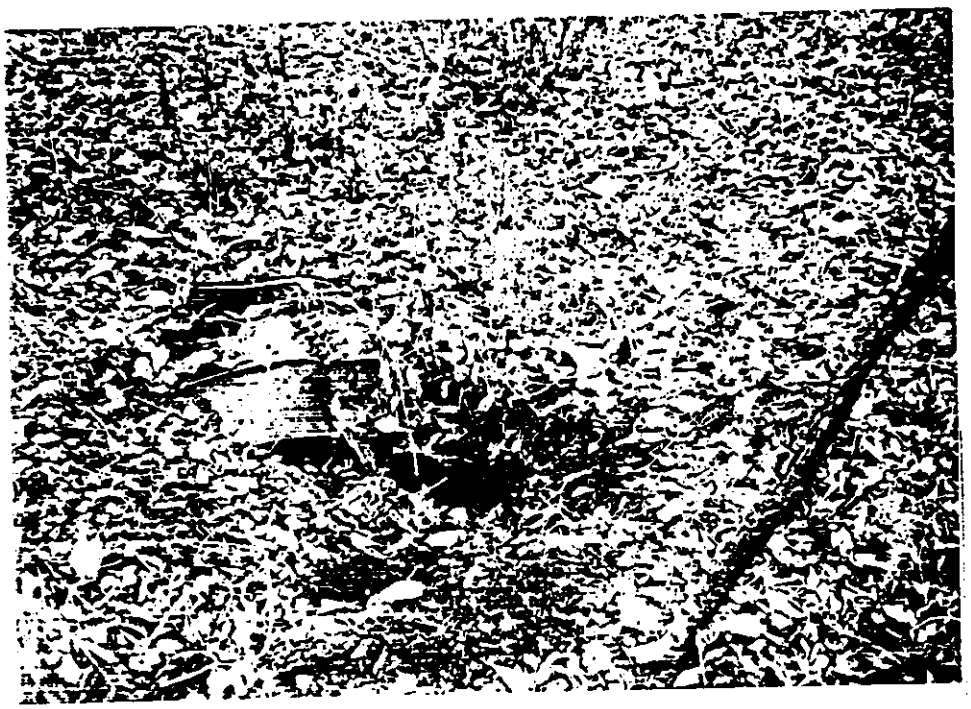
1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

SITE: [illegible] SITE
DATE: [illegible]
FOR: [illegible]
REMARK: PHOTO SHOWS SAMPLING AREA [illegible]
REMARK:
REMARK:

SITE: BAREFOOT SANITARY SITE
DATE: 8/7/90 HOLLIDAYSBURG, BLAIR CO., PA
FOB: 1105 TOD: 9010-105 PHOTO BY TAT FISHER
REMARK: PHOTO SHOWS AREA S1 AND EVIDENCE OF
REMARK: HEAVY CONTAMINATION.
REMARK:



SITE: BAREFOOT SANITARY SITE
DATE: [illegible] HOLLIDAYSBURG, BLAIR CO., PA
POS: [illegible] PHOTO BY TAT FISHER
REMARK: PHOTO SHOWS SAMPLING POINT S11, AL20
REMARK: SHOWS DRUM.
REMARK:

100094