NCDENR
North Carolina Department of Environment and Natural Resources

Dexter Matthews, Director

Division of Waste Management

Beverly Eaves Perdue, Governor
Dee Freeman, Secretary

September 30, 2009

Ms. Carolyn Callihan, RPM
US EPA Region IV Waste Division
Atlanta Federal Building
61 Forsyth St., 11th Floor
Atlanta, GA 30303-3104

Subject: Pre-CERCLIS Screening Assessment
Coca-Cola Bottling Company Consolidated
36 Clayton Road
Skyland, Buncombe County, NC,28704

Dear Ms. Callihan:

This site was pre-screened for potential listing on CERCLA. Based on findings of this Screening Assessment, it is recommended that this site **not** be listed on CERCLIS for further study.

The coordinates of the site are 35.48176° north latitude and 82.56639° west longitude (Ref. 1).

In 1997, ESE Engineering was contracted by Coca-Cola Bottling Company Consolidated (CCBCC) to evaluate the potential impacts to site soils and groundwater from the operation of a floor drain located in the maintenance shop of the Skyland facility. Soils below the floor drain were contaminated with tetrachloroethylene (PCE) at 250 ppm, 2-methyl-naphthalene at 0.78 ppm and phenol at 45 ppm. Arsenic (1.8 ppm), selenium (2.8 ppm), chromium (15 ppm), lead (16 ppm), and barium (42 ppm) were also detected.

After receiving the initial report, NC DEHNR requested CCBCC perform additional subsurface investigations to determine the potential impacts to soils and groundwater. A geoprobe unit installed 5 soil borings to determine the extent of contamination. SB-2 was advanced to 26 ft below land surface (bls) with samples collected every 4 feet. After 26 feet the unit advanced until it encountered bedrock at 46.5 ft bls. This hole was then converted into a temporary monitoring well and GW-2 was collected. 4 additional soil borings were advanced to 16 ft bls. An Organic Vapor Analyzer (OVA) was used to field screen the soil samples. Only SB-2 and SB-4 had concentrations above background. One soil sample (033) from 4-6 ft bls in SB-2 had laboratory analysis done. No volatile or semi-volatile organic compounds were detected. No inorganic compounds were detected in the TCLP analysis. Cadmium (0.033 ppm), chromium (0.76 ppm), lead (0.26 ppm), and barium (8.4 ppm) were detected in the groundwater sample above the State groundwater standards.

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A sample was also collected from the sludge in the on-site septic tank since it was suspected that thy floor drain and the septic tank were connected. Arsenic (6.2 ppm), selenium (0.56 ppm), cadmium (5.9 ppm), chromium (75 ppm), lead (310 ppm), and barium (450 ppm) all exceed their respective NCAL standards in the sludge.

Based on the contaminants and the operation of the facility, NC DEHNR division of Water Quality and the Division of Waste Management determined that this site should enter the RCRA program. An Administrative Order on Consent was signed on July 2, 1998.

Based on these findings, it is recommended that this site **not** be added to CERCLIS for further study under CERCLA. This site is being addressed by the RCRA Program. If you have any questions, please contact me at harry.zinn@ncdenr.gov or by phone at (919) 508-8488.

Sincerely,

Harry Zinn
Environmental Engineer
NC Superfund Section

Jim Bateson, Head
Site Evaluation & Removal Branch
NC Superfund Section

Attachments

cc: File (through Jim Bateson)

References:
1. Site Latitude/Longitude from Terraserve 1 page.
2. Subsurface Assessment, Coca-Cola Bottling Company Consolidated, May 22, 1997.
3. NCDENR Administrative Order on Consent letter, March 3, 2003.

PRE-CERCLIS SCREENING ASSESSMENT CHECKLIST/DECISION FORM

This checklist can assist the site investigator during the Pre-CERCLIS screening. It will be used to determine whether further steps in the site investigation process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer: Harry Zinn (Name/Title) 09/30/2009 (Date)
401 Oberlin Road, Raleigh, North Carolina (Address) 919-508-8488 (Phone)
harry.zinn@ncdenr.gov (E-Mail Address)

Site Name: Coca-Cola Bottling Company Consolidated

Previous Names (if any):

Site Location: 36 Clayton Road (Street)
Skyland (City) North Carolina (ST) 28776 (Zip)

Latitude: 35.48176° **Longitude:** 82.56639°

Complete the following checklist. If Ayes≅ is marked, please explain below.	YES	NO
1. Does the site already appear in CERCLIS?	☐	■
2. Is the release from products that are part of the structure of, and result in exposure within, residential buildings or businesses or community structures?	☐	■
3. Does the site consist of a release of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found?	☐	■
4. Is the release into a public or private drinking water supply due to deterioration of the system through ordinary use?	☐	■
5. Is some other program actively involved with the site (i.e., another Federal, State, or Tribal program)?	■	☐
6. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (i.e., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?	☐	■
7. Are the hazardous substances potentially released at the site excluded by policy considerations (e.g., deferral to RCRA Corrective Action)?	☐	■
8. Is there sufficient documentation that clearly demonstrates that there is no potential for a release that could cause adverse environmental or human health impacts (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, EPA approved risk assessment completed)?	☐	■

Please explain all Ayes≅ answer(s), attach additional sheets if necessary:

Site Determination:

☐ Enter the site into CERCLIS. Further assessment is recommended (explain below).

■ The site is not recommended for placement into CERCLIS (explain below).

DECISION/DISCUSSION/RATIONALE:

The Coca-Cola Bottling Company Consolidated, was identified during a search for alternative sources of groundwater contamination in the vicinity of the CTS site in Asheville, NC. The contaminants differ and the site is located on the western side of the French Broad River, which acts as a discharge point for and easterly migration of groundwater contamination.

In 1997, a site assessment was performed at the fleet maintenance shop at the Skyland facility to determine the impact of a floor drain which did not have a competent bottom . A soil boring performed at the floor drain showed 250 ppm of tetrachloroethene (PCE) and 45 ppm phenol. Various metals were also detected. Additional soil borings, a groundwater sample at geoprobe refusal (top of rock, 46.5 ft bls.), and a sludge sample from the septic tank were performed (Ref.2). No volatile or semivolatile compounds were detected in the groundwater sample; however, metals were detected which exceeded the NCALs. Some RCRA metals which exceeded the NCALs were detected in the sludge sample (Table 1 Analytical Summary, attached). Conversations between DWQ/GWS and DWM concluded that the RCRA Program would be the lead agency and a consent order would be issued. An Administrative Order on Consent was signed on July 2, 1998.

Regional EPA Reviewer: _____ _____

Print Name/Signature Date

State Agency/Tribe: HARRY ZINN _____ 9-30-09

Print Name/Signature Date

REFERENCE 1

TerraServer USA

Search TerraServer

Street
36 clayton road

City
skyland

State
nc

GO

Longitude -82.56639

Latitude 35.48176

GO

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36 Clayton Rd, Arden, NC 28704
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Image courtesy of the U.S. Geological Survey

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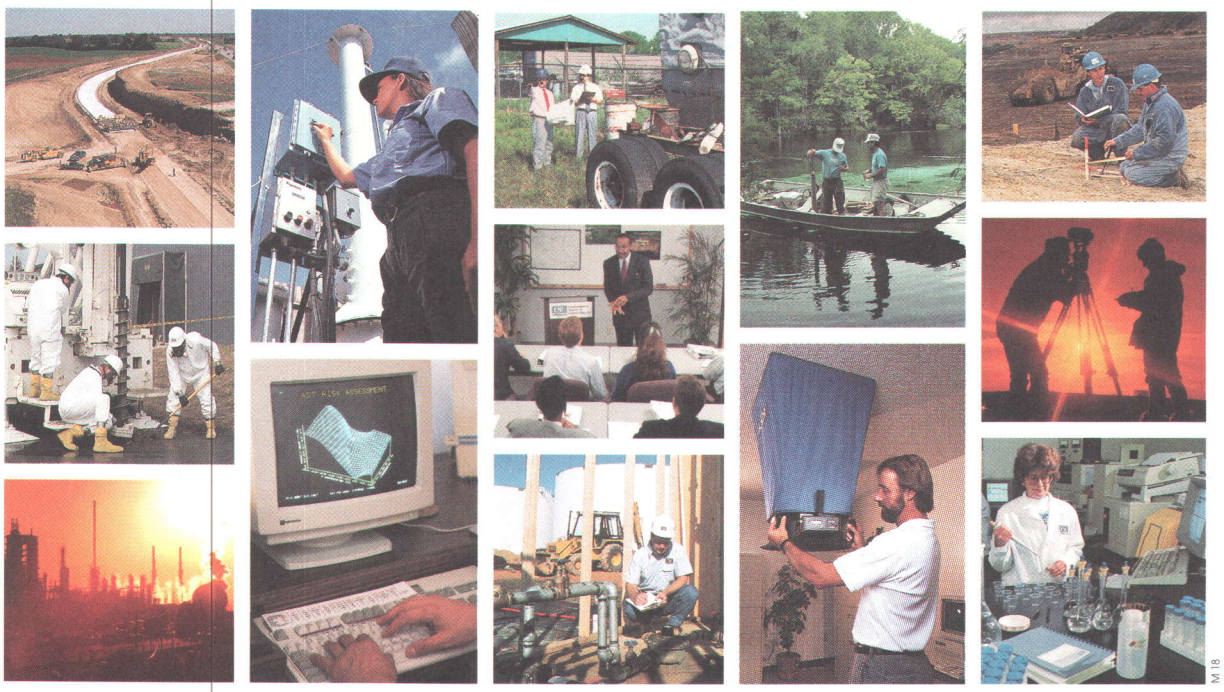
REFERENCE 2

RECEIVED
MAY 23 1997
Groundwater Section
Asheville Regional Office

REPORT

submitted to

Coca-Cola Bottling Co. Consolidated
Charlotte, North Carolina



May 1997

ESE
Engineering, P.C.

ESE
Engineering, P.C.

May 22, 1997

Mrs. Audrey Mershon
Regulatory Affairs Manager
Coca-Cola Bottling Co. Consolidated
P.O. Box 31487
Charlotte, North Carolina 28231-1487

Re: Subsurface Assessment
Coca-Cola Bottling Co. Consolidated Distribution Facility
Skyland, North Carolina
ESE Project Number 2597323

Dear Mrs. Mershon:

ESE Engineering, P.C. (ESE) has completed the Initial Subsurface Assessment at the referenced Coca-Cola Bottling Co. Consolidated (CCBCC) facility in Skyland, North Carolina (Figure 1). All investigation activities were performed in accordance with *Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, March 17, 1997* and the *Code of Federal Regulations* (CFR Title 40, Part 280.72). The following letter report descibes all site activities with analytical results, conclusions, and recommendations.

PROJECT BACKGROUND

ESE was contracted by CCBCC to evaluate possible impacts to site soils and groundwater from the operation of a floor drain located in the fleet maintenace shop of the Skyland facility. CCBCC requested the site assessment after learning that the floor drain did not have a competent bottom. Shop operations were suspected to have potentially impacted soils via the floor drain.

INITIAL SITE ACTIVITIES

Soil Sampling and Analysis

On March 5, 1997 ESE completed one soil boring (SB-1) by advancing a decontaminated stainless steel hand auger through the bottom of the floor drain to a total depth of 6 feet below land surface (ft bls).
The bottom of the floor drain is located 3 feet below the building floor grade. Therefore, a sample collected from 5 ft bls was collected from 2 feet below the bottom of the floor drain, for example.

Residual material soil samples were collected from 2, 5, and 6 ft bls beneath the floor drain from SB-1 for screening with an organic vapor analyzer (OVA). The OVA instrumentation employed a properly calibrated flame ionization detector for sample screening. Samples were screened by placing representative samples of soil in clean, resealable plastic bags and allowed to equilibrate to the ambient air temperature. The probe tip of the OVA was then inserted into the opening of the plastic bag to determine the apparent relative concentration of each sample. Sample concentrations were recorded on Field Sample Record forms and are included as Attachment A. Based on field observations and sample screening results, soil sample 003 collected from 6 ft bls was retained for laboratory analysis. The sample was placed in precleaned laboratory

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approved containers, packed in ice in a prechilled sample cooler, and delivered under chain of custody documentation to Prism Laboratories, a state of North Carolina certified laboratory in Charlotte, North Carolina. Soil sample 003 was analyzed for volatile and semi-volatile organic compounds via EPA Methods 8260 and 8270, respectively; arsenic, selenium, cadmium, chromium, lead, silver, and barium via EPA Method 6010; and mercury via EPA Method 7471.

To gain a better understanding of the fate of discharge from the floor drain, a dye tracer test was performed on March 5, 1997. Dye tracer tests involve the introduction of a fluorescent dye into the discharge point of industrial wastewater process. The dye is flushed down with clean water, and various observation points are monitored. If the dye comes through an observation point, a connection has been made.

Sample Results

Laboratory results indicate that soil sample 003 collected from 6 ft bls (3 ft below the bottom of the floor drain) contained 250 parts per million (ppm) tetrachloroethene (PCE), 0.78 ppm 2-methyl naphthalene, and 45 ppm phenol. Arsenic (1.8 ppm), selenium (2.8 ppm), chromium (15 ppm), cadmium (15 ppm), lead (16 ppm), and barium (42 ppm) were also detected in soil sample 003. As required by law, ESE reported the laboratory results to the NC DEHNR - Asheville Regional Office. An analytical summary is included as Table 1, and all analytical results are included in Attachment B. Soil sample locations are shown in Figure 2.

Following review of the analytical results, Ms. Kay Dechant and Ms. Robin Purcell of the NC DEHNR verbally requested that CCBCC perform additional subsurface investigation to determine the extent of potential environmental impacts to surrounding soil and groundwater.

Results of the preliminary dye testing were inconclusive; however, ESE and CCBCC personnel determined that discharge from the floor drain to the on-site septic system is likely.

ADDITIONAL SITE ACTIVITIES

On April 22, 1997 ESE personnel returned to the Skyland site to collect additional soil samples and one groundwater sample from the vicinity of the floor drain and collect a sludge sample from the on-site septic tank. Dye tracer testing was again performed to visually confirm the suspected fate of discharge from the subject floor drain to the onsite septic system.

Soil Sampling and Analysis

To collect additional soil samples for site characterization and to determine the lateral and vertical extent of soil impact, ESE advanced five Geoprobe® borings (SB-2 through SB-6) in the vicinity of the floor drain. Soil samples were obtained using direct-push technology via the Geoprobe® unit. Geoprobe® units use a rig mounted jackhammer to advance stainless steel soil sampling tools. At the CCBCC Skyland facility, undisturbed residual soil samples were continuously collected over 4-foot sample increments using Geoprobe® soil samplers lined with clean, disposable 1.5-inch diameter acetate sleeves.

Soil boring SB-2 was advanced to 26 ft bls, and soil samples were collected continuously for OVA screening. To determine the approximate depth to bedrock at SB-2, the soil sampling probe was replaced with a drive point, and the boring was advanced to probe refusal (top of rock) at 46.5 ft bls.

Soil borings SB-3 through SB-6 were each advanced to 16 ft bls, and seven soil samples were collected from each boring for field screening with an OVA. Only one soil sample (033) collected from SB-4 at 4-6 ft bls was retained for laboratory analysis. Soil sample 033 was analyzed, as requested by the NC DEHNR, for volatile and semi-volatile organic compounds and arsenic, selenium, cadmium, chromium, lead, silver, mercury, and barium via the Toxicity Characteristic Leaching Procedure (TCLP) via EPA Method 1311.

Following sample collection, all soil borings were abandoned by filling each with sodium bentonite which was then hydrated with clean water. A concrete patch was used to bring the borings back to grade.

Soil Sampling Results

Of the 47 soil samples screened with the OVA, only samples from soil borings SB-2 and SB-4 contained concentrations of organic vapors above background concentrations.

TCLP analysis of soil sample 033, collected from 4-6 ft bls beneath the floor drain, did not contain volatile and semi-volatile organic compounds or metals concentrations.

Groundwater Sampling and Analysis

As requested by the NC DEHNR, one groundwater sample (GW-2) was collected from the top of rock (approximately 46.5 ft bls), directly beneath the subject floor drain. Groundwater sample (GW-2) was analyzed via EPA Method 200.7 for total metals: arsenic, selenium, cadmium, chromium, lead, silver, and barium. In addition, the groundwater sample was analyzed for volatile and semi-volatile organic compounds via EPA Methods 601/602 and 625, respectively.

Groundwater Sample Results

Cadmium (0.033 ppm), chromium (0.76 ppm), lead (0.26 ppm), and barium (8.4 ppm) were detected in groundwater sample GW-2, which exceed the following North Carolina Action Limits (NCAL) for these metals: cadmium (0.005 ppm), chromium (0.05 ppm), lead (0.015 ppm), and barium (2.0 ppm). No volatile or semi-volatile organic compounds were detected in GW-2.

Septic Sludge Sampling

Since a limited dye test revealed the subject floor drain discharged to the on-site septic tank, ESE collected one sludge sample (053) from the septic tank for laboratory analysis. To collect the sample, ESE used a decontaminated stainless steel Eckman dredge sampling apparatus. The sludge sample was analyzed for the eight RCRA metals via EPA Methods 6010 and 7471, volatile organic compounds via EPA Method 8240, and semi-volatile organic compounds via EPA Method 8270.

Septic system leach field soil sampling was not performed since the exact location of the leach field could not be determined.

Sludge Sample Results

The following RCRA metals were detected in the sludge sample in exceeding the NCALs: arsenic at 6.2 ppm

(NCAL-0.05 ppm), selenium at 0.56 ppm (NCAL-0.05 ppm), cadmium at 5.9 ppm (NCAL-0.005 ppm), chromium at 75 ppm (NCAL-0.05 ppm), lead at 310 ppm (NCAL-0.015 ppm), and barium at 450 ppm (NCAL-2.0 ppm). The following volatile organic compounds were detected in sludge sample 053 ethylbenzene (9,900 ppb), toluene (41,000 ppb), and xylenes (41,000 ppb). The semi-volatile organic compounds bis (2-ethylhexyl) phthalate and naphthalene were reported present in sludge sample 053 at 15,000 ppb and 7,400 ppb, respectively. These compounds exceed allowable limits.

CONCLUSIONS AND RECOMMENDATIONS

ESE has completed the Initial Site Characterization Assessment of the Skyland facility. Analytical results of soil samples collected immediately adjacent and beneath an unlined floor drain located in the facility garage area suggest floor drain operation has resulted in impact to surrounding soil by volatile and semi-volatile organic compounds and metals. Based upon an OVA screening, the lateral extent of the soil impact could be less than 6 feet in diameter; however, vertical extent could be as deep as 15 ft bls.

The groundwater sample collected from 46.5 ft bls directly beneath the floor drain did not contain detectable concentrations of volatile or semi-volatile organic compounds. However, concentrations of cadmium, chromium, lead, and barium exceed the NCALs in GW-2.

The septic sludge sample contained volatile and semi-volatile organic compounds and metals which exceed allowable limits.

Upon your authorization, ESE will forward a copy of this report to the NC DEHNR - Asheville Regional office. ESE appreciates the opportunity to provide environmental consulting services to CCBCC. If you have any questions or comments regarding this report, please do not hesitate to call ESE at 704-527-7880.

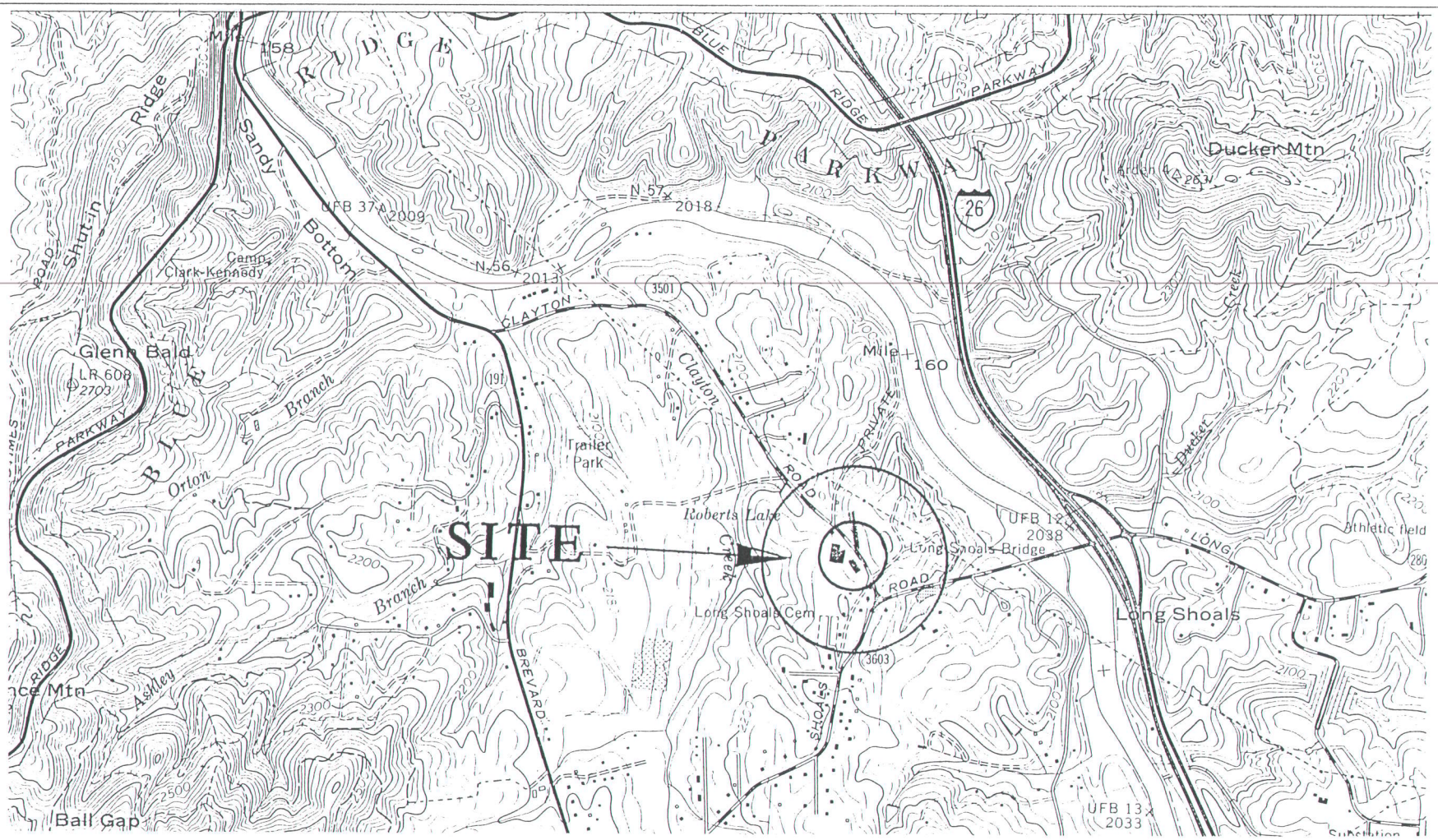
Sincerely,

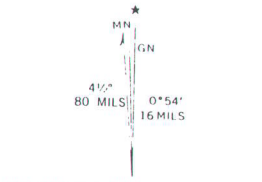
ESE Engineering, P.C.

Ed Hollifield
Project Manager

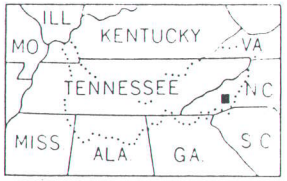
Charles Rowan, Ph. D, P.G.
Senior Geologist

FIGURES





UTM GRID AND 1991 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



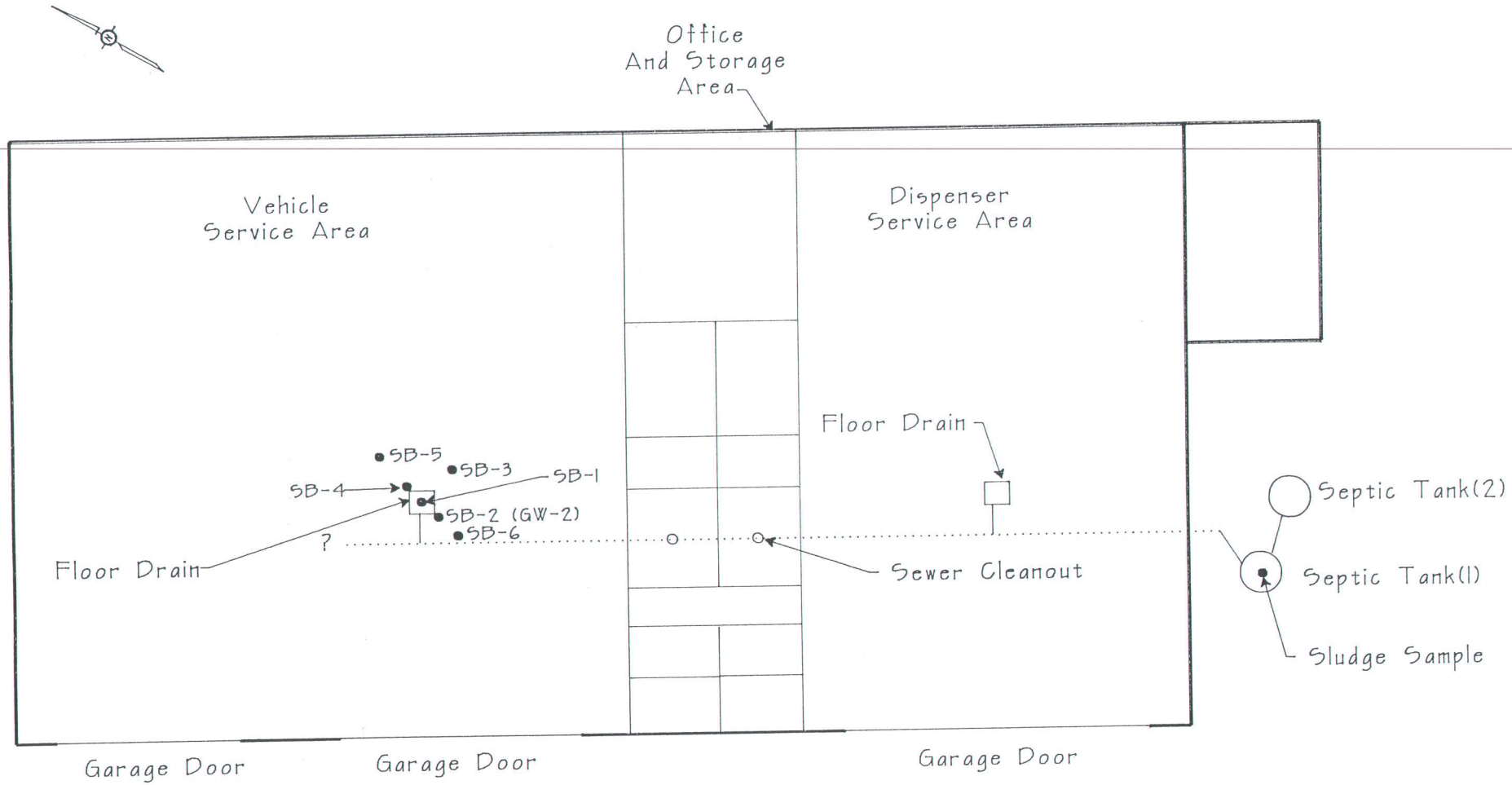
QUADRANGLE LOCATION

FIGURE I.

Coca-Cola Bottling Co. Consolidated
Skyland, North Carolina

Source: USGS 7.5 Minute Quad-Skyland NC 1965 (PR-1991)

DRN BY: EBH	ESE Engineering P.C. Charlotte, NC	SCALE: As Shown
CK BY:		PROJ NO: 2597323
PROJ MGR: EBH		FILE NO: 2597323
DATE 5 20-97		REV NC



Explanation

Soil Boring Location SB-4

FIGURE 2.

Soil Sample Location
Coca-Cola Bottling Co. Consolidated
Skyland, North Carolina

SOURCE: ESE, INC., 1997

DRN BY: EBH	ESE Engineering P.C. Charlotte, NC	SCALE: Not To Scale
CK BY:		PROJ NO: 2597323
PROJ MGR: EBH		FILE NO: 2597323
DA[illegible] ·20-[illegible]		EV N[illegible]

TABLE

Table. 1 Analytical Summary

Coca-Cola Bottling Co. Consolidated Facility, Skyland, North Carolina

ESE Project No. 2597323

Media Sampled		Soil	Sludge	Groundwater	**Groundwater**
Sample Number/Location		003 (SB-1)	053 (SB-3)	024 (GW-2)	**NCAL**
ANALYTE	**Con.**				
8-RCRA Metals					
Arsenic	ppm	1.8	6.2	BDL	0.05
Selenium	ppm	2.8	0.56	BDL	0.05
Cadmium	ppm	BDL	5.9	0.033	0.005
Chromium	ppm	15.0	75.0	0.76	0.05
Lead	ppm	16.0	310.0	0.26	0.015
Silver	ppm	BDL	BDL	BDL	0.018
Mercury	ppm	BDL	BDL	BDL	0.0011
Barium	ppm	42.0	450	8.4	2.0
Volatile Organics					
Tetrachloroethene	ppb	250,000	BDL	BDL	0.7
Ethylbenzene	ppb	BDL	9,900	BDL	29
Toluene	ppb	BDL	41,000	BDL	1,000
Total Xylenes	ppb	BDL	41,000	BDL	530
Semi-volatile Organics					
2-methyl naphthalene	ppb	780	BDL	BDL	MDL
Phenol	ppb	45,000	BDL	BDL	MDL
Bis (2-ethylhexyl) phthalate	ppb	BDL	15,000	BDl	MDL
Naphthalene	ppb	BDL	7,400	BDL	21

Notes:

BDL = below detection limit

MDL = method detection limit

NCAL = North Carolina Action Limit

ppb = parts per billion

ppm = parts per million

REFERENCE 3

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

March 3, 2000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

NCS 000000128

Audry Mershon
Coca-Cola Bottling Co. Consolidated
P.O. Box 727
Skyland, North Carolina 28776

RE: Administrative Order on Consent
Coca-Cola Bottling Co. Consolidated
Skyland, North Carolina Facility
EPA ID Pending

Dear Ms. Mershon:

This office has reviewed your facility's Remedial Investigation & Waste Disposal Report concerning the Coca-Cola Bottling Co Consolidated (CCBCC). The following comments must be addressed prior to final acceptance of this report and a determination that the requirements of the July 2, 1998 Administrative Order on Consent are fulfilled.

Some metals (As, Cd, Cr, Hg) were detected in several soil samples (sample #, 054-soil at bottom of excavation; 105, 111, 112-soil from septic drain field; 108-soil from MW-4 soil boring) above NC Soil Screening Levels (NCSSLs) protective of ground water (see NCSSL attachment). Since no background soil samples were submitted, it is not possible to determine if these levels are naturally occurring background or if they are a result of a release. Prior to a "no further action" decision, CCBCC must provide sufficient information to determine the source of these metals.

No quality control samples were submitted with the analytical data. Therefore, there is no way to determine if the results of the analysis are accurate and precise. Labratory quality control data must be provided.

Analytical data was not submitted for ground water sample MW-1D. Since QST Engineering states that no analytes were detected above the method detection limit, CCBCC must submit the data that supports this statement or provide analysis of additional samples.

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Acetone was detected at 1400 ppb (North Carolina 2L groundwater standard is 700 ppb) in MW-4. QST Engineering states that this may possibly be a laboratory artifact. This level seems high for a lab contaminant. The detection limit for acetone is 50 ppb. The lab should provide evidence to verify that acetone is a lab contaminant. Such evidence could include the presence of acetone in the methods blank or other non-related samples analyzed in the same batch as MW-4. Unless it can be verified that this analysis result was a lab contaminant, additional analysis will be required.

Within thirty (30) days of receipt of this letter, CCBCC must provide a response addressing the concerns listed in this letter. If you have any questions concerning the requirements of this letter, please contact Doug Roberts at (919) 733-2178 ext.233.

Sincerely

Jill Burton, Acting Chief
Hazardous Waste Section

Enclosure: Administrative Order on Consent

c Doug Holyfield
Robin Proctor
Doug Roberts
Bill Miller
Central Files

rc Linda Culpepper
Helen Cotton

TABLE 1

NORTH CAROLINA SOIL SCREENING LEVELS

Protective of Groundwater Used for Drinking

DRAFT: Values in Table are subject to change. Contact the NC Hazardous Waste Section, Facility Management Branch for the most recent version.

COMPOUNDS	CAS #	Kd (L/kg)	Ref.	Koc (L/kg)	Ref.	HENRY'S LAW CONSTANT (unitless)	Ref.	See Footnotes	TARGET GROUNDWATER CONCENTRATION (2L, Interim 2L Recommended 2L, or MCLG) (mg/L)	NC SSL CONCENTRATIONS (mg/kg)
CARBON DISULFIDE	75150			45.7	a	1.24	a	1	0.7	4.94
CARBON TETRACHLORIDE	56235			152	a	1.2013	c		0.00030	0.0027
CHLORDANE	57749			51300	a	0.00199	a		0.0000270	0.0278
CHLOROBENZENE	108907			224	a	0.16113	c		0.05	0.438
CHLOROETHANE	124481			3.24	e	0.4551	e	1	2.8	13.6
CHLOROFORM (TRICHLOROMETHANE)	75003			52.5	a	0.13899	c		0.00019	0.00101
CHLOROPHENOL 2-	95578			397	a	0.016	a		0.0001	0.00120
CHROMIUM	7440473	27	a						0.05000	27.200
CHRYSENE	218019			398000	a	0.00388	a	1	0.005	39.8
COPPER	7440508	35	d						1.0	704
CYANIDE	57125	9.9	a						0.154	31.1
4,4' - DDD	72548			4.58E+04	a	1.64E-04	a	1	0.00014	0.129
4,4' - DDT	50293			6.78E+05	a	3.32E-04	a	1	0.0001	1.36
DIBENZ (A,H) ANTHRACENE	53703			1.79E+06	a	6.03E-07	a	1	0.0000047	0.168
DI (OR BIS) 2-ETHYLHEXYL PHTHALATE (DEHP)	117817			111000	c	0.0000418	c		0.0030	6.67
DI-N-BUTYL (OR DIBUTYL) PHTHALATE (DBP)	84742			1570	a	3.85E-08	a		0.7	24.8
DI-N-OCTYL PHTHALATE	117840			83200000	a	0.00274	a		0.14	233000
DIBROMOCHLOROMETHANE (CHLORODIBROMOMETHANE)	124481			6.31E+01	a	0.03210	a	1	0.00041	0.00171
DIBROMO-3-CHLOROPROPANE 1,2-	96128			98	b	0.01275	b		0.000025	0.00015
DICHLOROBENZENE 1,2 (O-DCB)	95501			379	a	0.07954	c		0.062	7.270
DICHLOROBENZENE 1,3 (M-DCB)	541731			1700	c	0.10783	c		0.62	23.7
DICHLOROBENZENE 1,4 (P-DCB)	106467			616	a	0.11152	c		0.075	1.24
DICHLORODIFLUOROMETHANE (FREON-12; HALON)	75718			58	b	123	e		1.4	306
DICHLOROETHANE 1,1	75343			53.4	a	0.22345	c		0.70	3.820
DICHLOROETHANE 1,2 (ETHYLENE DICHLORIDE)	107062			38	a	0.0451	c		0.00038	0.00184
DICHLOROETHENE 1,2 (CIS)	156592			35.5	a	0.167	a		0.07	0.350
DICHLOROETHENE 1,2 (TRANS)	156605			38	a	0.385	a		0.07	0.380

1 - Interim 2L Standard
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3 - No 2L Std or interim standard; MCLG/proposed MCLG used instead

TABLE 1

NORTH CAROLINA SOIL SCREENING LEVELS

Protective of Groundwater Used for Drinking

DRAFT: Values in Table are subject to change. Contact the NC Hazardous Waste Section, Facility Management Branch for the most recent version.

COMPOUNDS	CAS #	Kd (L/kg)	Ref.	Koc (L/kg)	Ref.	HENRY'S LAW CONSTANT (unitless)	Ref.	See Footnotes	TARGET GROUNDWATER CONCENTRATION (2L, Interim 2L Recommended 2L, or MCLG) (mg/L)	NC SSL CONCENTRATIONS (mg/kg)
DICHLOROETHYLENE 1,1 (VINYLIDENE CHLORIDE)	75354			65	c	0.6109	c		0.007	0.0445
DICHLOROPHENOXY ACETIC ACID 2,4 (2,4-D)	94757			20	b	0.007708	b		0.07	0.309
DICHLOROPROPANE 1,2-	78875			47	a	0.11562	c		0.00056	0.00288
DICHLOROPROPENE 1,3 (CIS AND TRANS)	542756			27.1	a	0.1435	c	1	0.0002	0.000958
DIELDRIN				25500	a	0.000619	a	1	0.0000022	0.00113
DIETHYLPHTHALATE (DEP)	84662			82.2	a	0.0000185	a		5	28.2
DINOSEB (DNBP) (2-SEC-BUTYL-4,6-DINITROPHENOL)								3	0.007	
2,4-DIMETHYLPHENOL	105679			209	a	0.000082	a	1	0.140	1.15
DIOXANE 1,4	123911			3.47	e	0.00020008	e		0.00700	0.0285
DIOXIN: 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TCDD)	1746016			3300000	b	0.1476	b		0.00000000022	0.0000145
DIPHENYL (BIPHENYL)	92524			1072	e	0.007913	e	1	0.35	8.91
DIUNDECYL PHTHALATE (SANTICIZER 711)	3648202				cd		cd		0.14	
ENDRIN	72208			10800	a	0.000308	a	1	0.002	0.440
EPICHLOROHYDRIN (1-CHLORO-2,3-EPOXYPROPANE)	106898			10	b	0.0013079	b		0.00354	0.0149
ETHYLBENZENE	100414			204	a	0.14063	c		0.029	0.241
ETHYLENE DIBROMIDE (EDB, 1,2-DIBROMOETHANE)	106934			44	c	0.027593	c		0.0000004	0.00000197
ETHYLENE GLYCOL	107211			0.0127	g	9.594E-09	k		7	28.0
FLUORANTHENE	206440			49100	a	0.00066	a	1	0.28	276
FLUORENE	86737			7710	a	0.00261	a		0.28	44.3
FLUORIDE	7782414		cd						2	
HEPTACHLOR	76448			9530	a	60.7	a		0.000008	0.00240
HEPTACHLOR EPOXIDE	1024573			83200	a	0.00039	a		0.0000040	0.00667
HEPTANE	142825			5870	h	83.435	e		2.1	559
HEXACHLOROBENZENE (PERCHLOROBENZENE)	118741			80000	a	0.0541	a		0.00002	0.0321
HEXACHLOROCYCLOPENTADIENE	77474			200000	a	1.1	a	3	0.05	200
IRON	7439896	25	d						0.3	151
INDENO (1,2,3-CD) PYRENE	193395			3.47E+06	a	6.56E-05	a	1	0.000047	3.26

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a USEPA, 1996, Soil screening guidance: Technical background document: EPA/540/R95/128

b USEPA, 1986, Superfund public health evaluation manual: Office of Emergency and Remedial Response

c Massachuesetts Department of Environmental Protection, 1994, Background documentation for the development of the MCP numerical standards

d Baes, C.F., III, R.D. Sharp, A.L. Sjoreen, and R.W. Shor, 1984, A review and analysis of parameters for assessing transport of environmentally released radionuclides through agriculture: Oak Ridge National Laboratory

e Montgomery, J.H., 1996, Groundwater chemicals desk reference: CRC Press, Inc.

f Lymen, W.J., W.F. Reehl, D.H. Rosenblat, 1990, Handbook of chemical property estimation methods: American Chemical Society

g Calculated using equation (70) in reference (a)

h Calculated using equation (71) in reference (a)

i Sims, R.C., J.L. Sims, and S.G. Hansen, 1991, Soil transport and fate database, version 2.0: USEPA Robert S. Kerr Environmental Research Laboratory

j Calculated using equation (63) in reference (a)

k ABDR Toxicity Profile, 1993

l Montgomery, J.H., 1993, Agrochemical desk reference environmental data: Lewis Publishers, Chelsea, MI