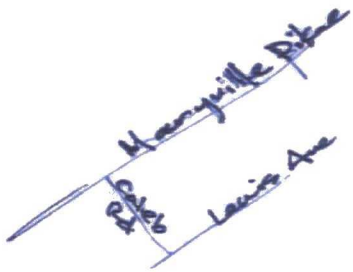
SMOKEY MOUNTAIN SMELTERS

TN0002318277
TND0987106
1508 MARYVILLE PIKE

KNOX COUNTY

A4MD



11067653

TDEC STUDY 9/1/2005

29 acres (~14 acres)

Building approx 100' x 300' x 50'

↳ 2 nat gas rotary furnaces
1 casting furnace
overhead crane
storage area

Truck scales on-site (likely not operable)

Drainage swale along SE of building

Knoxville Fertilizer Co located onsite in 1922 and 1948; had Nitre house (KNO_3) → strong oxidizer used in gunpowder making

1963 → American Agricultural Chemical Company, bought by Continental Oil company in 1965
→ made nitrogenous and phosphatic basic fertilizers, mixed fertilizers, pesticides, etc.

1979 – Smokey Mtn Smelter (aka Rotary Furnace Inc.)

Processed scrap or initially processed aluminum, including "spent potliners" which are a K088 listed waste

* some may still be present on site.

Avg: 1 million #s scrap
→ { 760,000 # secondary Aluminum
24,000 # dross residue
3,000 # baghouse dust.

Dross contains: corrosive salts, aluminum nitride, sodium chloride, potassium chloride, heavy metals, other cont.
→ salt cake in water emits: hydrogen, ammonia, methane, phosphine, acetylene, hydrogen cyanide, hydrogen sulfide.

Baghouse dust contain: cadmium and lead

* suggestion that chemical wastes were discharged to settling ponds that were later filled in by aluminum smelting wastes

unnamed stream flows 1.6 miles to Flemniken Brach where sediment impacts have been observed. ~~[illegible]~~

15 mile surface water path begins @ Flemniken Brand and includes the TN River from mile marker 637.5 to 625.3

includes no drinking water intakes, but last 13.3 miles is classified as "domestic water supply"

Contaminants in soil/sediment that exceeded criteria of concern: cadmium, Copper, Mercury, Nickel, Dieldrin, Aluminum, Zinc, Toluene

REAC STUDY 7/13/2007

RAD: Background → 70 uR/hr β
10 uR/hr γ

Highest → 100 β
50 γ
60-80 cpm α
↳ in the furnace from fire bricks

Average → 30-60 uR/hr β
9 uR/hr γ

DIOXIN: highest = 6.8 ppb
average = one or more orders of magnitude less

ASBESTOS: two samples contained 50% chrysotile 1) gray corregated siding sheet, 2) "cement" board waste in southern/lower portion of building.

PAINT: 4800 ppm lead around steel furnace, 60,000 ppm lead around east furnace.

SURFACE WATER: elevated chlorides (11500 mg/L), flouride (215 mg/L), and alkalinity (1260 mg/L)

WASTE PILE: average thickness 15-20 ft, max of 27 ft and min of 5-10 ft.

Strong ammonia odor in some places, no Draeger readings in breathing zone, 70 ppm in bore hole

PESTICIDE/PCB: Aroclor-1260 (47500 µg/kg) @ depth of 19 ft in SB04 [waste pile?]

METALS: Aluminum (100,000 - 200,000 ppm) Magnesium (5000 - 22000 ppm). Sodium (1000's - 10000's; max 129000 ppm)

INORGANICS: Ammonia (max 3770 ppm in building waste pile), Nitrates (max 1330 ppm in bag filter)

* Cyanide gas and Ammonia gas may be generated by ~~[illegible]~~ materials at the site under certain conditions.

ISSUES TO CONSIDER:

- average particle size of material for disposal and processing method.
- structural integrity of building and operable conditions for safety
- potential RAD sources due to outside dumping/witherspoon.
- Lack of water supply
- Mercury switches and gauges
- Unknown buried materials: drums

Remedial Background Info:

Held by LOFTON CARR at one point in 2006

Site accessable to tresopassers, evidence it's used as a play area.

* K088 waste - spent potliners of primary aluminum reduction.
40 CFR 261.32
proposed rule change to BDAT in 2000 for K088
(Fed Reg Vol 65 No 134 Jul 12, 2000 42937)

Smokey Mtn. Smelter in proximity of:
PROJECT WITHERSPOON
~~Once alleged~~ ~~[illegible]~~ ~~[illegible]~~ David Witherspoon of a company by his own name who dealt in recycled metal and operated a landfill @ 1630 Maryville Pike. Of three sites owned at least one has been highly contaminated with improperly managed radioactive metals.
Project Witherspoon is a public effort to have the sites ~~[illegible]~~ cleaned up.

REDACTED

Exemption 6 Personal Privacy

ATTORNEY: [redacted] MANN
404-562-9572
mann.teresa@epa.gov

EPM: FELICIA JACKSON
404-562-8894
jackson.felicia@epa.gov

CI: BLAKE STERLING
404-562-8852
sterling.blake@epa.gov

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT & CONSERVATION
Division of Remediation

BURL H. MAUPIN
Environmental Protection Specialist

Knoxville Environmental Field Office
3711 Middlebrook Pike
Knoxville, TN 37921-6538
Burl.Maupin@state.tn.us

Office: (865) 594-6035
Direct: (865) 594-5479
Fax: (865) 594-6105

BURL. MAUPIN @ state.tn.us
865 310 5479 cell
~~865 594 54~~ 865 594 5479 office
3711 Middlebrook
Knoxville, TN
(~~take middlebrook pike exit off~~ I-40)

GINNY DAVIS
901-937-4308 office
513-520-7194 alternate

WASTE PILE approx 216200 yd^2
or 5.4 acres

ATTORNEY: TERESA MANN
404-562-9572
mann.teresa@epa.gov

ROBERT POWELL
615 532 0916
~~TEN~~ Tennessee council

CONF CALL LINE: 1-866-299-3188
R: CALL-IN: 404-562-8764 CODE: 1110
J: 404-562-8754 3928

~~For Burl Maupin~~: general Q's

- WHAT happened to the state of Tennessee commissioner's order?
- FIND USGS topographic maps: 1942, 1966, 1978
- should possibility of fertilizer waste be investigated when salt cake is removed.
- Consider Drum dump, may have hazardous materials
- Rebar or buried tank may be north of the waste pile
- Get REAC data to process in GIS

8/1/2008
meeting w/ Bud Mangin in Knoxville, TN

- copied contract between SMS and Metal Exchange

- Nashville office has a copy of all records in Knoxville office — contact Bob Powell 615 532 0916

- Records are fine - damaged and extremely brittle.

- Mangin suggests building an erosion control element such as hay bales or sediment pond when the land is cleared.

- Waste found in heavily wooded area W of the building previously thought to contain none

- current fence on E and SE corner of site

8/1/2008
measuring density of waste

#1 top of hill, middle of pile
≈ 40# per 5 gal 0.81 ton/yd³
blue/green dust in mixture
soft, sandy-silt like consistency

#2 top of hill, near lagoon
≈ 47# per 5 gal 0.95 ton/yd³
less blue/green dust in mix
same consistency

#3 middle of overgrown area, near stream
NE side of the cide, 200' SE of building
compact, grand, silt/clay, gray/dark
blue/green dust intermittent
aluminum(?) bits still strewn about
≈ 63# per 5 gal 1.27 ton/yd³

#4 ≈ 55# per 5 gal 1.11 ton/yd³
black 3' then gray as before
↳ "baghouse dust"
blue/green dust mixed w/ gray material
some brown clay
fine, dense, clay/silt consistency
W of center of pile

#5

middle of vegetation, exposed waste
saltcake mound, lots of blue/green
dust mixed in
≈ 49# per 5 gal 0.99 ton/yd³
sandy/silt
W side/edge of pile, 7% grade
down to creek, landing of clay
silt before creek
several acres nearby have 1'-6"
of topsoil covering waste material
borings may have shown 3-4'
depth, grade of hillside shows
that it could be 6-10'

8/4/2008 PLANNING / STRATEGY MTG
Felicia Blake Matthew
Tony Jose

- get population info into Action Memo
- get letters to heirs
- Need access from a judge
- Find TN and Fed recycling ~~[illegible]~~ regulations that exempt generators
- BEVILL amendments ?

REDACTED

8/4/2008

- Use letter from TNDHE dated Oct 12, 1990 defining salt cake special wastes and approving disposal to Chestnut Ridge

CHESTNUT RIDGE LANDFILL
140 FLEENOR MILL ROAD
HEISKEL, TN 37
865-457-7810
special wastes contact:
TRAVIS MARIANSKI
865-388-7279

current rate (8/6/2008)

* 8/7/2008
talked with Travis Marianski
WM does not accept any saltcake at its Subtitle D facilities.
(Allied and Waste Connections may not either).

Exemption 4 Confidential Business Information (CBI)

8/14/2008

Burl Margin suggestions for disposal options, alt landfills

- INCO, recycling facility in neighbor county, sends waste to KY

- SCEPTER (sp?) in Humphries county in W of ~~Hay~~ Nashville, has its own landfill. The landfill may contain K088 and Burl is not certain that it is compliant w/ disposal regulations from previous experience.

REDACTED

Exemption 6 Personal Privacy

GINNY DAVIS , ENSAFE

ggray@ensafe.com

20 years experience in dominion recycling industry remediation

- suggests Dry Entombment for disposal.
  - ↳ no recirculation of leachate (will cause reactions)
  - ↳ no bioremediation (methane collect (ammonia and chlorides kill bios)

8/4/2008

Dry Entombment

- must have a release mechanism for the gas
- HDPE material will likely work but installation often fails
- C-equivalent cell
- Washing/Welling to remove the ammonia gas
- See RCRA on cell construction
- Need example of a cell built in the last 3 years.
- David Apline 2146057188
  RPM in R6
- Scrubbing ammonia gas?

DAVY SIMONSON
LEO ROMANOWSKI

DAVID WITHERSPOON
OFFICE 865-577-1613

PLANET, INC (for K-N Painting)
865-354-0605
920 N Front Ave
Rockwood, TN 37854

8/28/2008 CONF. CALL
Teresa Mann
Blake Sterling
Felicia Jackson
Matt Hayman

Action Memo - shortened to construct fence and conduct remedy investigation.
— if investigation may qualify as EE/CA

Access: - family is "feuding" and non-cooperative with one another
- daughter and daughter's lawyer are the only contacts.
- Felicia looking for #/address of mother and son
LT Teresa will call on weekend
- Blake getting 15-20

ACTION MEMO BRIEFING 9/11/2008
w/ Randall
Access w/ Teresa — Tara DuBois
— Webster, Mann, Jackson, Huyser

Following up w/ Remedial about
Sending/acting

— WTG Jim! (let Jim talk)

9/11/2008 OBJECTIVES FOR INVESTIGATION

— is waste RCRA characteristic for
reaction?
— does it have the potential to fail
and release off site in a storm?
— what are receptors downstream?
— how has the stream been damaged?
— do we need more stream samples?
↳ do we expect them to change?
— what is the true waste volume?
— what are the options?

9/12/2008 Andrews steals AM Guidance
it's in cube # 11050 :)

OHIOEPA → NEWARK PROCESSING
similar site for smelting wastes
Fred Meyers 614 728 3830
site was capped and closed
operation shutdown in 1996
removal done by OEPA
www.epa.state.oh.us/cdo/newark_processing.html
→ fred.meyers@epa.state.oh.us

Paul Ruesch
312.617.7212
COUNTYWIDE LANDFILL
epaosc.net/countywide
3619 Gracemont Street SE
East Sparta, OH 44626
Lat ~~40.6716~~ 40.6717 Lon -81.4314

10/9/2008 SITE VISIT
severe security problems, equip.
from contractors regularly stolen;
fences regularly broken/breached

Access best provided by ~~[illegible]~~ lower
entrance, boxes will be moved
by Witherspoon
↳ need 1 week's notice

Another PRP? ~~[illegible]~~ Bon-el (sp)
suggested by Witherspoon memory

Bud mentions a second pile of
dross under collapsed portion of building

10/15 meeting on RDT presentation
- add heading to ES1, S1, ES1 p2
- add cadmium to ES1 & ES1p2 tables

METAL RECYCLING FOR THE FUTURE

David Witherspoon, Jr.

PRESIDENT

DAVID WITHERSPOON, INCORPORATED

P.O. Box 52505 • Knoxville, Tennessee 37950-2505

(~~615~~ 865) 577-1613 • (In TN) 1-800-826-3425 • FAX 577-3105

ENVIRONMENTAL RESTORATION LLC

1666 Fabick Drive
St. Louis, MO 63026
www.erllc.com

NAICS: 562910
GSA Contract
GS-10F-0291S

Ron Lybarger, CHMM
Sr. Response Manager

Office: 636-227-7477
24 Hr. Emergency: 888-814-7477
Fax: 636-227-6447

Mobile: 618-407-2968
Email: r.lybarger@erllc.com

REAC contact @ ERT
Nancy Or 732-321-6745
Andy ~~Zelnac~~ 732-321-6744
Zownier

Paul Ruesch
Environmental Engineer
312 6177212 Cell
(312) 886-7898
(312) 353-4788 Fax
ruesch.paul@epa.gov

Region 5
U.S. Environmental Protection Agency
77 W. Jackson Blvd.
Chicago, Illinois 60604-3590

(800) 621-8431 ext. 6-7898

Printed on recycled paper with natural soy inks

1/6/2009

SAMPLING CONSIDERATIONS

- groundwater wells for drinking and residential/commercial use
- dross sampling for reactivity etc. may require large samples and need ERRS support for skid-steer, etc.
- consider dross reuse experiments that would be conducted by secondary smelter for reprocessing
  - if materials are sold/given to a secondary smelter, EPA may become a responsible generator for subsequent saltcake material.
- strength and characteristics of material

- get new photos of surface water path, runoff, creek, fishery for John Noden
- "data gaps" for HRS will be identified by Tetra Tech for Noden and will be fed for consideration in new sampling trip.

Dross: 4 locations, 3 depths (12 samples)
- Volume estimate
- recyclability (meet w/ Alcoa, state)
- treatability

1/16/2009 CONT'D
review of reactivity test report reveals where sample for test may have come from (inside dross pile) but no indication of depth or condition when taken from pile. Sample # 182-0056 does not appear on custody record to lab and was collected in a ~~bag~~ plastic bag.

1/16/2009

1/7/2009
Stakes were installed on 1/5/2009 prior to major rain event on 1/5-1/6 to measure washout/runoff. 12" stakes were numbered, marked with a level, driven into the soil up to level mark, painted, and photographed.
LOCATIONS
- exposed waste pile on S side of main building (#001-020)
- lagoon bank, one exposed area and another overgrown area (#031-040)
- creek seep and drum dump (#021-030)

1/7/2009 CONT'D

- stakes: no observed change after storm event, minor changes on some stakes (see photos), inspected 001-020 and 021-030. Did not observe 031-040.
- creek levels are significantly higher than observed during previous visits. Depth ranges from 8" to 12", width @ 2'-3', and flow at 2-3 ft/s.
- seep into creek is significant, flow rate looks to be 1-2 gal/min
- flow/discharge from lagoon observed to be flowing at similar rate to seep. Flow travels in ditch around South perimeter of waste pile in direction of seep. The flow to the seep may actually be the same thing, but steep grades and thick brush prevent access.

1/8/2009 SEARCHING FOR WATER WELLS

- 1911 Mt Oline Road
- 1909 Mt. Oline Road
- 1752 J.C. White Road
- 2 down Dyer Lane — 2 locations
- 1725 Mt. Oline, Darrell Richards
  - says water is yellow, was recently tested and determined to be acidic (tested by salesman for water filter)
- Waddoke Lane (2627, 2624, 2630, 2632) 2621, 2620,
- 2104 Maryville Pike
- service stations / monitoring wells may provide groundwater access, but no drinking water targets. Can use for background and closer range locations to compare against longer range locations of receptors

1/15/2009 RPM meeting on enforcement

John Nolin — Blake Sterling
Felicia Jackson — Dawn Taylor
Matt Huyser — Teresa Mann

Blake reports that approximately 20-30 PRPs have been listed and several responses may have been collected by the State.

Greg Lewetscher has had the site and researched whether the PRP generators would be liable.

#1 Teresa and staff will figure out who is still in business
#2 Send 104(e) letters

Draft package for scoring due in April, only answer necessary is that 104(e) letters have been sent.

Fertilizer (?) - si decide when to send 104(e) to Agrico

http://www.lib.utk.edu/cic/tnmap/browse.html

REDACTED

Exemption 6 Personal Privacy

Housing project blind SMS:

100

www.kcdc.org

Don Peterson: VP of development

MONTGOMERY VILLAGE,

Exemption 6 Personal Privacy

~~Billy Spekuza~~

Billie Spicuzza

Exemption 6 Personal Privacy

fax

REDACTED

Exemption 6 Personal Privacy

3/20/2009
Phone messages:

DAN TILLER, Montgomery Village KCDC
dtiller@kcdc.org
did not receive form, need to email

BILLY FREEMAN
has questions
called back, * would like to be present for sampling, please call to schedule, (works for TDEC, knows Bob)

SAMUEL Mt Olive Road

called back, no answering machine, 10:04AM

4/14/2009
conf call (START, REAC, EPA)

* START needs residential well list

START will be writing a single plan based on information provided by REAC.
- includes: soil sample
  ground water sample
  surface water sample
- extra for REAC:
  treatability/reactivity

~~Plan~~ Do not sample for inorganics. organics only. Arsenic will be high simply based on geology. Lead may also be high based on plumbing.

Chlorides in drinking water?
→ would require extra bottle and may need extra lab.
→ Does chlorides contamination more in groundwater?

4/14/2009

Bring ERRS man w/ skid steer beginning tuesday the 28th and stay as long as friday (may likely be done by tuesday)

4/15/2009

Determine whether to do VOCs on the residential wells. The level of acetone in TW-5 was very low and MCLs for VOCs are high. It is unlikely that any will be found and even less likely that they will exceed MCLs. The scan may be ordered in the SAP and from the CLP, but it can be rejected during sampling in the field.

REDACTED

4/28/2009

* Spoke from EP believes that the blue dust in the waste is actually crystals of Aluminum Silicate (Al_2SiO_5) aka "Kyanite"

Spoke w/ who was a at the fertilizer factory for 8 yrs, operating the bagger. Mentioned a storage shed that was used to store and/or mix pesticides, from drums. Recalls two ponds/lagoons, one was referred to as the "acid pond" but he does not know what type of acid was used or what strength; ~~the second one~~ one pond was filled in at one point prior to SMS operating. He does not know what was in any of the tanks or pipes on the site.

Exemption 6 Personal Privacy

4/28/2009 cont'd

EP excavated a sample hole in the waste pile at the SW corner. The ~~[illegible]~~ activity generated significant clouds of dust which was contained in the building. The operator wore level C resp. protection.

A strong ammonia odor was observed when the pile was excavated. The MultiRAE read 0 ppm NH3 in the headspace and never exceeded 1 ppm in headspace. Readings were ~~at~~ 20 ppm in the ~~ex~~ open excavation hole, 45 ppm in a waist-high crevice, and 60 ppm in a crevice ~~at~~ at foot level.

Several small "pops" were seen and heard when the pile was excavated and sampled. Once agitated, no agitation was necessary for it to continue infrequently; ~~there~~ it could not have been cavitating air pockets. Small "poofs" were seen ~~th~~ as well.

4/25/2009

The popping was not observed when the smaller piles on the North wall were excavated. A strong ammonia was still observed but was not as significant ~~as~~ when compared to the SW pile.

NH3 readings excavating small ~~pit~~ pile in ppm
38 shovel ~~25~~ full
37 waist ~~crevice~~ -high crevice
94 in pit, fresh hole
25 shovel full
127 in pit, fresh hole
0 Head space away from pile

NH3 readings excavating large pile in ppm
32 1 ft deep fresh hole (weathered side)
140 2 ft deep fresh hole "
0 head space away from pile
60 crevice in pit at feet
45 crevice at waist height

7/7/2009

Only 3 PRPs may exist for product sent after 1993

- East TN Iron and Metal
  ↳ decent records
- Newman
- Carthage
  ↳ minimal records

* Blake will search for company

* Felicia will generate SCORPIOs report and send to me for processing of Dross-related costs

* I will write draft Enf. AM and send Work to be performed to Felicia and Melissa for AOC

* I will review memo to file for Melissa

* Felicia and Melissa will draft 104(e) letters. (104(e) sent to East TN already... maybe from PDEC?)

7/29/2009 site walkthrough

- need to finish road for trucks/equip
  ↳ entrance and exit
- material removal may not require total building demo
- include removal and disposal of dirt/silt on slab of building floor
- include removal of material from rotary furnaces
- EPL will contact Alcoa w/ EPA reference
- EPL taking sample for asbestos analysis from furnace
- consider moving saltcake onto slab after building demo

REDACTED

KCDC

Knoxville's Community Development Corporation

Jeff Jones

Property Manager - Montgomery Village

P.O. BOX 3550 • Knoxville, TN 37927-3550
(865) 755-6024 • FAX (865) 594-8687
jsjones@kcdc.org • www.kcdc.org

ENVIRONMENTAL RESTORATION LLC

1666 Fabick Drive
St. Louis, MO 63026
www.erllc.com

NAICS: 562910
GSA Contract
GS-10F-02915

David A. Brinkmeyer, CHMM

Vice President - Government Contracts

Email: d.brinkmeyer@erllc.com
24 Hr. Emergency : 888-814-7477
Office: 636-227-7477
Fax: 636-227-6447

Direct: 636-680-2407
Mobile: 636-448-1298

MAGIC CARPET

Installation Restretching

1909 Mt. Olive Rd.
Knoxville, TN 37920

Phone: (865) 579-4999
Pager: (865) 545-9718

Exemption 6 Personal Privacy

11067653 p. 42