Ground Water

November 2, 2011

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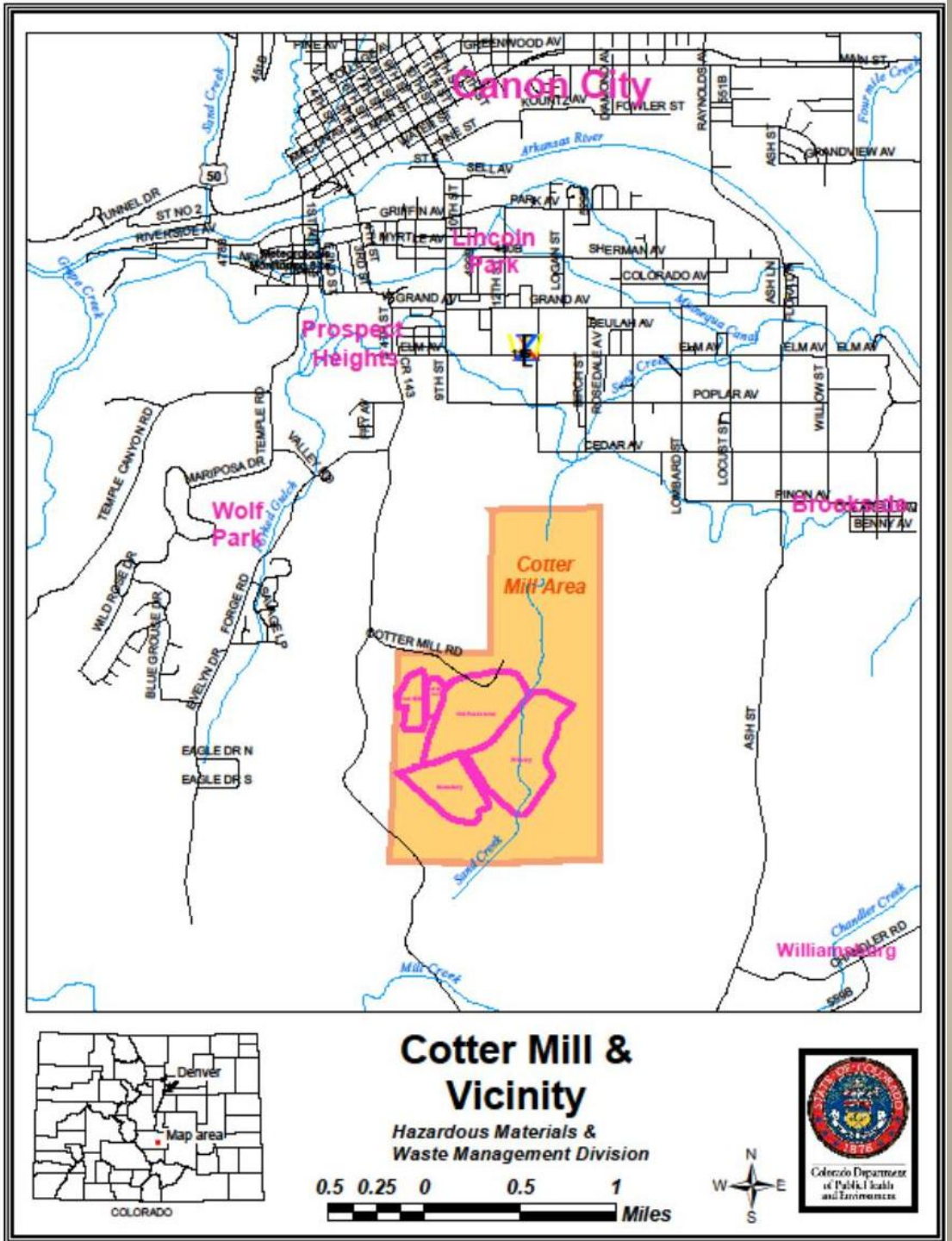
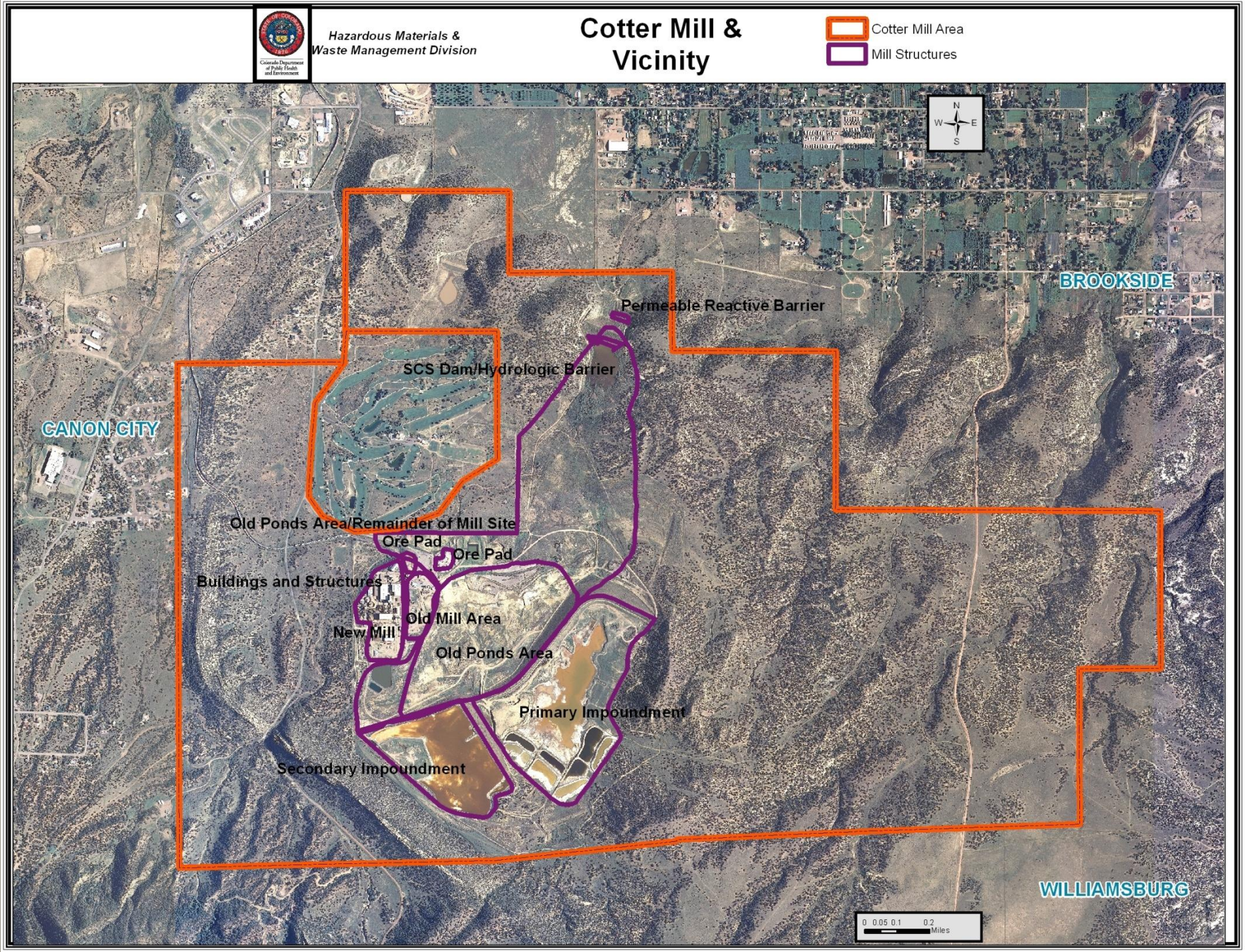
Colorado Department
of Public Health
and Environment

Topics

- TCE in Ground Water
- Northwest Ground Water Plume
- Dam to Ditch Area
- Lincoln Park
- Old Ponds Area
- Impoundment Leakage Investigations
- Questions


Canon City
Lincoln Park
Prospect Heights
Wolf Park
Brookside
Williamsburg
Cotter Mill Area
Arkansas River
Sand Creek
Mill Creek
Chandler Creek
Fourmile Creek
Grape Creek
Sand Creek
Minnequa Canal
Richard Gulch
GREENWOOD AV
FOWLER ST
KOUNTZ AV
SELL AV
GRIFFIN AV
MYRTLE AV
PARK AV
SHERMAN AV
COLORADO AV
GRAND AV
BEULAH AV
ELM AV
POPLAR AV
CEDAR AV
PINON AV
BENNY AV
GRANDVIEW AV
MAIN ST
TUNNEL DR
ST NO 2
RIVERSIDE AV
TEMPLE CANYON RD
MARIPOSA DR
TEMPLE RD
VALLEY RD
WILD ROSE DR
BLUE GROUSE DR
EVELYN DR
FORGE RD
EAGLE DR N
EAGLE DR S
COTTER MILL RD
ASH ST
LOCUST ST
LOMBARD ST
WILLOW ST
ROSEDALE AV
9TH ST
CR 143
50
Denver
Map area
COLORADO
Cotter Mill &
Vicinity
Hazardous Materials &
Waste Management Division
0.5 0.25 0 0.5 1
Miles
N
W
E
S
Colorado Department of Public Health and Environment


Hazardous Materials & Waste Management Division
Cotter Mill & Vicinity
Cotter Mill Area
Mill Structures
N
W
E
S
BROOKSIDE
Permeable Reactive Barrier
SCS Dam/Hydrologic Barrier
CANON CITY
Old Ponds Area/Remainder of Mill Site
Ore Pad
Ore Pad
Buildings and Structures
Old Mill Area
New Mill
Old Ponds Area
Primary Impoundment
Secondary Impoundment
WILLIAMSBURG
0 0.05 0.1 0.2
Miles

TCE in Ground Water

- TCE =

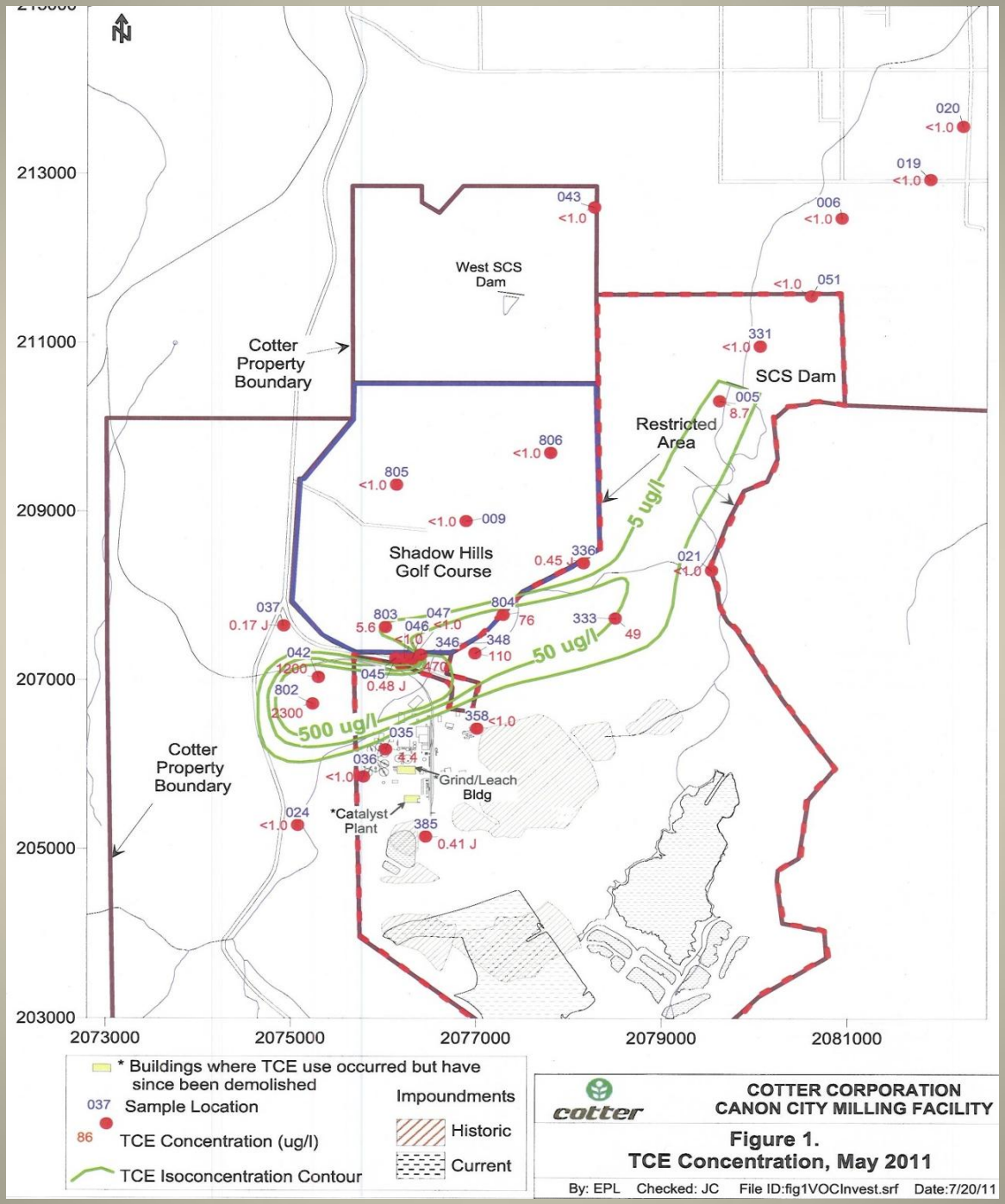
  Trichloroethylene =

  Trichloroethene =

  TCE is used primarily as a non-flammable solvent.

TCE in Ground Water

- Cotter was analyzing well water for tri-halo methanes (THCs) and found TCE.
- Cotter performed a ground water survey for TCE and other volatile organic compounds (VOCs) from west of the mill to Lincoln Park.
- TCE was not found in Lincoln Park wells tested.
- Water analyses also found common gasoline additives 1,2-dichloroethane (DCA) and methyl tert-butyl ether (MTBE).


N
213000
211000
209000
207000
205000
203000
2073000
2075000
2077000
2079000
2081000
West SCS Dam
Cotter Property Boundary
Cotter Property Boundary
Shadow Hills Golf Course
SCS Dam
Restricted Area
5 ug/l
50 ug/l
500 ug/l
*Grind/Leach Bldg
*Catalyst Plant
020 <1.0
019 <1.0
006 <1.0
043 <1.0
051 <1.0
331 <1.0
005 8.7
806 <1.0
805 <1.0
009 <1.0
336 0.45
021 <1.0
804 76
333 49
803 5.6
047 <1.0
046 <1.0
346
348 110
042 1200
045 0.48 J
802 2300
037 0.17 J
358 <1.0
035 4.4
036 <1.0
024 <1.0
385 0.41 J
* Buildings where TCE use occurred but have since been demolished
037 Sample Location
86 TCE Concentration (ug/l)
TCE Isoconcentration Contour
Impoundments
Historic
Current
COTTER CORPORATION
CANON CITY MILLING FACILITY
Figure 1.
TCE Concentration, May 2011
By: EPL Checked: JC File ID:fig1VOCInvest.srf Date:7/20/11

Soil Vapor Survey

- Cotter is performing soil vapor survey and more ground water sampling to locate possible source areas.
- Soil vapor survey is reconnaissance technique. It can help to decide where to drill new wells or excavate.

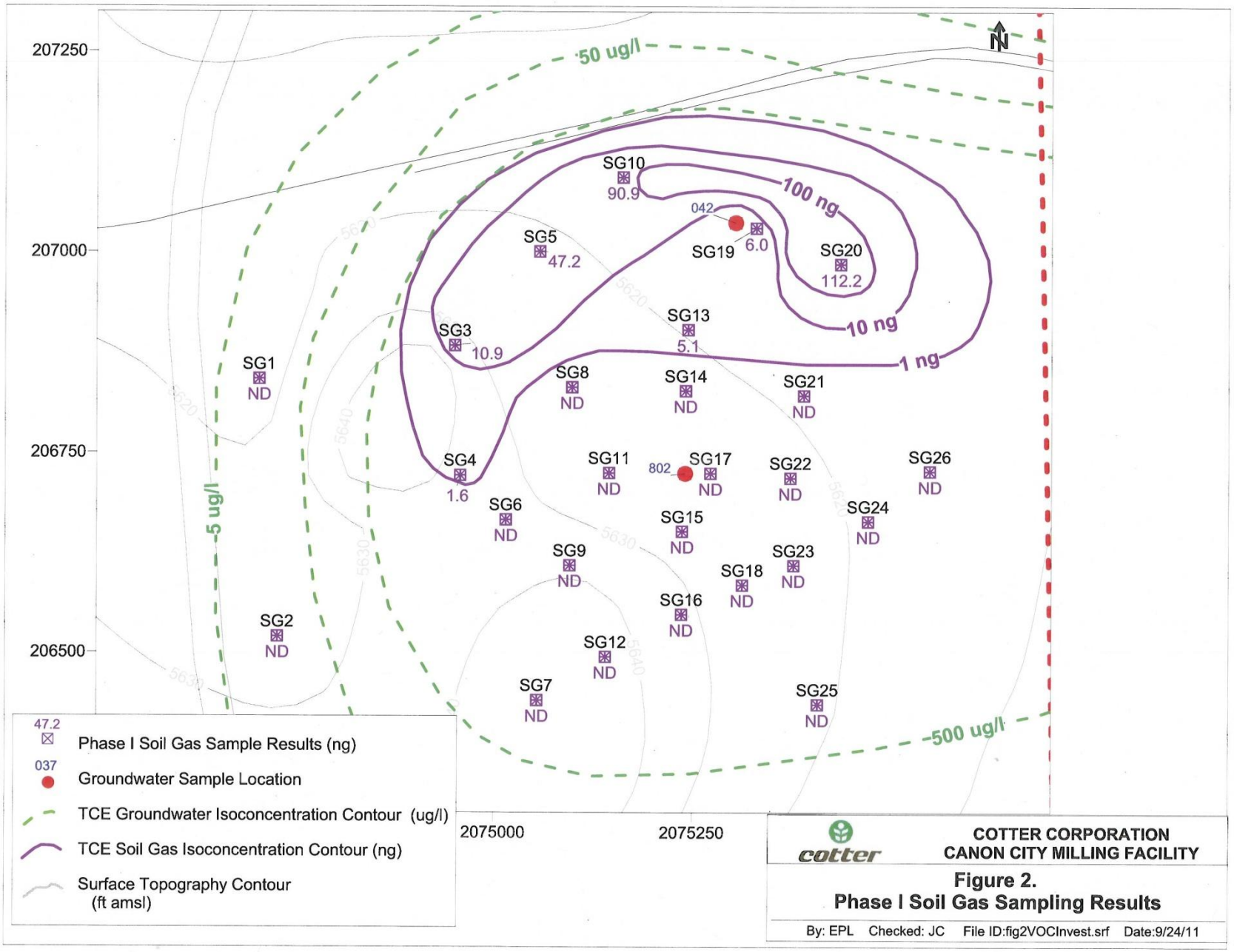


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Figure 2.
Phase I Soil Gas Sampling Results

By: EPL Checked: JC File ID:fig2VOCInvest.srf Date:9/24/11

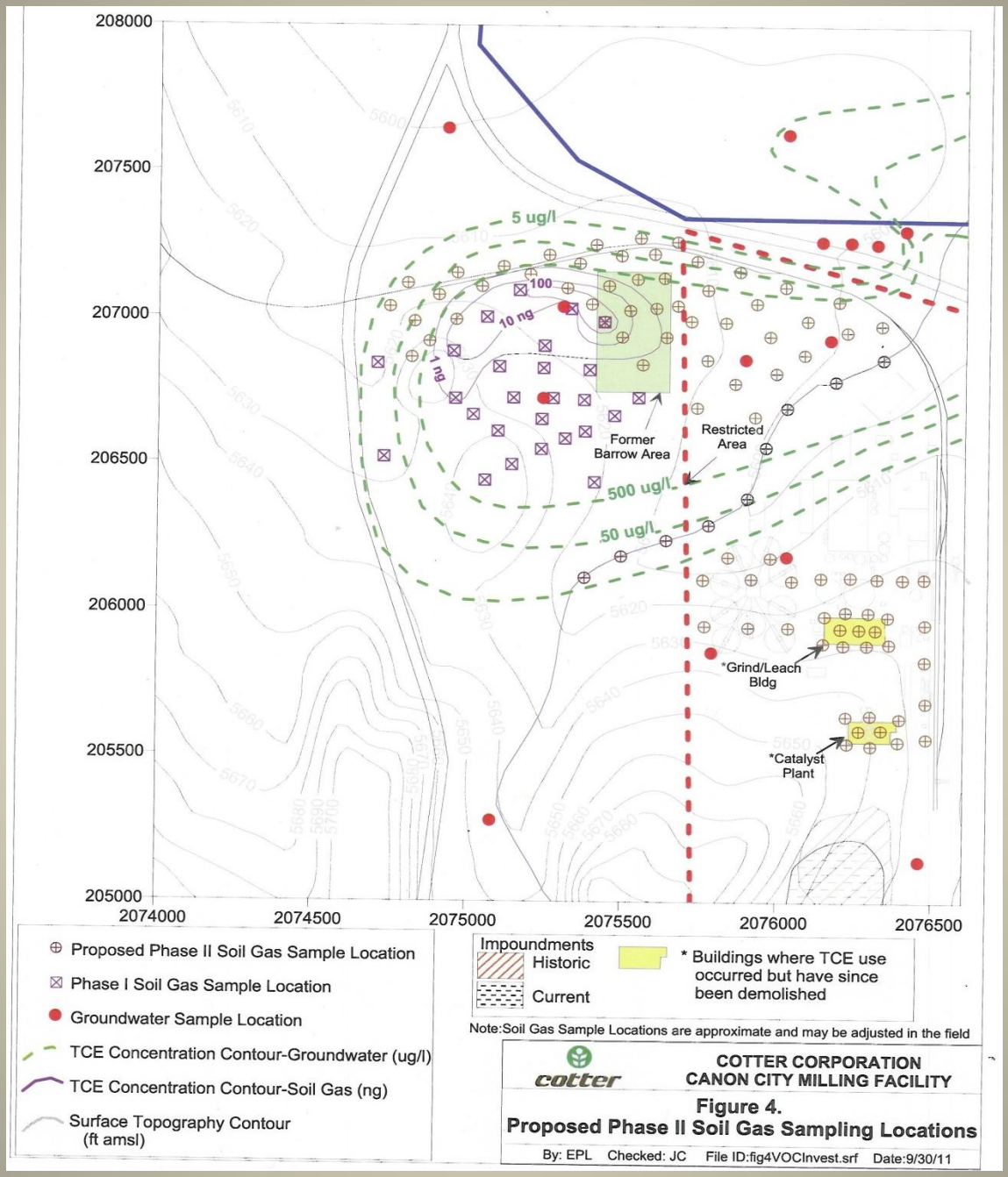
208000
207500
207000
206500
206000
205500
205000
2074000
2074500
2075000
2075500
2076000
2076500
5 ug/l
100
10 ng
1 ng
Former Barrow Area
Restricted Area
500 ug/l
50 ug/l
*Grind/Leach Bldg
*Catalyst Plant
Proposed Phase II Soil Gas Sample Location
Phase I Soil Gas Sample Location
Groundwater Sample Location
TCE Concentration Contour-Groundwater (ug/l)
TCE Concentration Contour-Soil Gas (ng)
Surface Topography Contour (ft amsl)
Impoundments
Historic
Current
* Buildings where TCE use occurred but have since been demolished
Note:Soil Gas Sample Locations are approximate and may be adjusted in the field
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Figure 4.
Proposed Phase II Soil Gas Sampling Locations
By: EPL Checked: JC File ID:fig4VOCInvest.srf Date:9/30/11

Removal of passive soil gas sampler before capping vial at SG-02.