



SUBSURFACE EXPLORATION LOG

CLIENT: *Vonora LLC*
 JOB NUMBER: *04020-023-4312*
 LOCATION: *Henderson, NV*
 SURFACE ELEVATION:

GEOLOGIST: *Anita Regmi*
 DATE DRILLED: *06/25/08*
 DRILLING COMPANY: *Boart Longyear*
 NORTHING:

Boring/Well ID Number: *SA87/M142 Pg 1*

TOTAL DEPTH: *45'*
 DRILLING METHOD: *Sonic*
 SAMPLE METHOD: *Split Spoon*
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | | |
|--------------|---------|--|------|---------------|------------|---------------|----------------------|--------|--------|--------|-------------------------------|--------------------------|----------|---------|------------|------------|------------------|-------------------------|-------------------------|-----------------------|-----------------|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | | | grain size range/gravel | grain size range/sand | max gravel size | grading | Additional Modifiers |
| 5 | | SA87-05B @ 0.5' | 830 | 0.0 /0.0 | 10 | 10ft | 10 | 85 | 10 | 0 | SW well-graded Sand | 10YR 5/4 yellowish brown | D | 1.6 | N | SA SR | F | C | 1.5" | W | Caliche lenses | SW | |
| 10 | | | | 0.0 /0.0 | 25 | 10ft | 25 | 70 | 5 | 0 | SW well-graded Sand w/ gravel | | D | 1.6 | N | SA SR | F | C | 2" | W | Caliche lenses | SW | |
| 15 | | SA87-10B SA87-10R (Spike) @ 10' | 945 | @ 10' | 10 | 10ft | 5 | 95 | 0 | 0 | SW well-graded Sand | 10YR 5/4 | D | 1.6 | N | SA SR | F | C | 0.5" | W | Caliche | SW | |
| 20 | | | | 0.5 /10.0 | 5 | 10ft | 5 | 95 | 0 | 0 | SW well-graded Sand | 10YR 5/3 brown | D | 1.6 | N | SA SR | F | C | 2" | W | Caliche | SW | |
| 22' | | SA87-20B @ 20' | 1025 | @ 20' | 10 | 10ft | 10 | 90 | 0 | 0 | Boundary | | M | 1.4 | Med | R | F | | | P | Muddy Creek fm | 22H | |
| 25 | | SA87-25B @ 25' | 1200 | | 0 | 10ft | 0 | 10 | 90 | 0 | MH - Elastic Silt | 7.5YR 5/4 brown | | | | | | | | | | MH | |
| 30 | | SA87-30B @ 30' | 1055 | @ 30' | | | | | | | | | | | | | | | | | | | |

Notes: see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)

>1/4 inch visible - 1/4 in. visible with hand lens not visible

use Munsell color chart

Dry Moist Wet

Dense, D. Sand

Non High Med. Low

Angular, SA, SR, Rounded

Fine, Coarse

Fine, Med, Coarse

in inches

Poorly Well

Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: *Anita Regmi*
 DATE DRILLED: *06/25/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: *SA87/M142* *Kg 2*

TOTAL DEPTH: *45'*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | |
|--------------|---------|---------------|------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|-------------------------|---------------------|----------------------------------|---------------------------|-----------------------------|-------------------------|-------------------------|-----------------|------------------|----------------------------------|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | Additional Modifiers |
| 30' | | SA87-30B | 1055 | 0.4/0.0 | V | 10ft | 0 | 10 | 90 | 0 | MH - Elastic Silt | 7.5YR 5/4 brown | M | D | Med | R | | F | | P | GW @ 32' | MH | |
| 35' | | | | 0.4/0.0 | b | | | | | | Same as above | | | | | | | | | | | MH | |
| 40' | | | | 0.4/0.0 | v | | | | | | MH - Elastic Silt | 7.5YR 5/4 brown | M | D | Med | R | | F | | D | | MH | |
| 45' | X | | | 0.4/0.0 | t | 5ft | 0 | 10 | 90 | 0 | | | | | | | | | | | | | X |
| | | | | | | | TD - 45ft | | | | | | | | | | | | | | | | |
| 50' | | | | | | | | | | | | | | | | | | | | | | | |
| 55' | | | | | | | | | | | | | | | | | | | | | | | |
| 60' | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | coarse, med Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | Odor, Staining, Mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: *Anita Regmi*
 DATE DRILLED: *06/26/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: *SA57* *Pg 1*

TOTAL DEPTH:
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples Depth | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | | | |
|--------------|---------------|---------------|------|---------------|------------|---------------|----------------------|--------|--------|--------|------|-------|---------------------|---------------------------|------------|------------|-------------------------|------------------|-------------------------|-----------------------|-----------------|---------|---|----|-------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | Additional Modifiers | | |
| 0.5' | | SA57-05 | 1245 | 21/100 | V | 10ft | 5 | 95 | | | | | Sw-well graded Sand | 2.5Y 3/3 dark olive brown | D | L | N | SA-SR | F | C | 2" | W | Caliche lenses | SW | 3ft |
| 5' | | | | | V | | | | | | | | | 10YR 5/4 yellowish brown | D | L | N | SA-SR | F | C | 1" | W | | SW | |
| 10' | | SA57-10 | 1300 | 19/60 | V | | | 5 | 95 | | | | | 10YR 5/4 yellowish brown | | | | | | | | | | | |
| 15' | | | | | V | | | | | | | | Same as above | | | | | | | | | | | | |
| 20' | | SA57-20 | 1315 | 28/00 | V | 10ft | | 10 | 90 | | | | MH-Elastic Silt | 7.5YR 5/4 Brown | M | D | M | R | | F | | P | Muddy Creek Fm Caliche lenses present thru the entire length. | MH | 19.5' |
| 25' | | | | | V | | | | | | | | Same as above | | | | | | | | | | | | |
| 30' | | SA57-30 | 1350 | 13/00 | V | | | | | | | | | | | | | | | | | | | | |

Notes: *Boundary*

>1/4 inch visible - 1/4 in. visible with hand lens not visible see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)

use Munsell color chart

Dry Moist Wet

Dense, D, Sand

Non High Med Low

Angular, SA, SR, Rounded

Fine, Coarse

Fine, Med, Coarse

in inches

Poorly, Well

Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regmi
 DATE DRILLED: 06/26/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: SA57

TOTAL DEPTH: 40ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

Pg 2

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | |
|--------------|---------|---------------|------|---------------|--|---------------|----------------------|--|-------------|--|-------------------------|----------------------|-------------------|------------------------|-----------------------------|-----------------|-------------------------|------------------|-------------------------|----------------------------------|--|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | Additional Modifiers |
| 35 | | | 305 | 140/ 13.7 | 8 - 12 - 15 - 20 - 25 - 30 - 35 - 40 - 45 - 50 - 55 - 60 | 10ft | 100 | | | | MH - Elastic SILT | 7.5YR 5/4 # Brown | UM | D | N | R | OL | F | 0.5' | P | Trace gravel and cobble lenses Gw @ 32' | MH | |
| | | | | | | | 40ft = Total depth | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | Odor, Staining, Mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: *Anita Regmi*
 DATE DRILLED: *06/26/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: *SA180*

TOTAL DEPTH: ~~SA180~~
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

Page 1

| Depth (feet) | Samples Depth | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | |
|--------------|---------------|---------------|------|---------------|------------|---------------|----------------------|--------|--------|---------------|-----------------------|--------------------------------|----------|---------|------------|------------|-------------------------|-----------------------|-----------------|------------------|---------------------------------------|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | Additional Modifiers |
| 0.5 | SA180-050655 | | | 157/0.0 | V | 10ft | 5% | 95 | 0 | 0 | SW - well graded Sand | 10YR 6/4 light yellowish brown | D | L | N | SA - SR | F | M to C | 1.5' | W | Caliche | SW | |
| 5 | | | | | B | | | | | Same as above | | | | | | | | | | | | SW | |
| 10 | SA180-100747 | | | 109/0.0 | R | 10ft | | | | | Same as above | | | | | | | | 1.25' | | | SW | |
| 15 | | | | | A | | | | | | | | | | | | | | | | | | |
| 19 | | | | | T | | | | | | | | | | | | | | | | | | |
| 20 | SA180-20752 | | | 108/0.0 | I | 10ft | 100 | | | | SW | 10YR 5/4 yellowish brown | D | L | N | SA - SR | F | M | | P | No Caliche, No gravel | SW | 19ft |
| 25 | | | | | O | | 10 | 90 | | | Elastic Silt | 7.5YR 5/4 brown | M | D | M | R | | F | | P | Muddy Green formation | MH | 24ft |
| 30 | SA180-30816 | | | 533/0.0 | N | | | | | | Same as above | | | | | | | | | | Caliche nodules betw. 24' to 27' bgs. | | |

Notes:
 >1/4 inch visible - 1/4 in. visible with hand lens not visible see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) use Munsell color chart Dry Moist Wet Loose, Very Dense, D. Sand Non High Med Low Angular, SA, SR, Rounded Fine, Coarse Fine, Med, Coarse in inches Poorly, Well Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: *Antia Regmi*
 DATE DRILLED: *06/26/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: SA180

TOTAL DEPTH: *40ft*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

Hj2

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | |
|--------------|---------|---------------|------|---------------|--------------------------------------|---------------|----------------------|--|-------------|--|-------------------------|--------------------------|-------------------|---------------------------|----------------------------|-----------------|-------------------------|------------------|-------------------------|----------------------------------|-----------------|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | Additional Modifiers |
| 35 | | | | 65700 33' | V | 10ft | 5 | 95 | | | SW - well graded sand | 10YR 5/4 yellowish brown | D y | L 2500 | N | SA SR | F | M to C | | W | GW-34.5' | SW | 30ft |
| 40 | | | | 487 135' | b r a n c h e t | | | 10 | 90 | | MH - elastic silt | 7.5YR 5/4 brown | M D | | M | R | | F | | P | | MM | 35ft |
| 40 | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | Dense, D. Sand | Non High Med Low | Angular, SA SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | Odor, Staining, Mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

Boring/Well ID Number: *M 128*

GEOLOGIST: *Anita Regni*
 DATE DRILLED: *06/27/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

TOTAL DEPTH: *55ft*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

Pg 2

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | |
|--------------|---------|---------------|---|---------------|--|----------------------------|----------------------|-------------------|------------------------|-------------|--|---------------------------|------------------------|----------------------------------|---------------------------|-----------------------------|-------------------------|-------------------------|-----------------|------------------|----------------------------------|---|----------------------|-----------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | Additional Modifiers | |
| 35 | | | <i>2:24</i> <i>0.0</i> <i>40'</i> | | <i>V</i> <i>H</i> | <i>10ft</i> <i>100%</i> | | <i>10</i> | <i>90</i> | | | <i>MH - Elastic SILT</i> | <i>7.5YR 5/4 brown</i> | <i>UM</i> | <i>D</i> | <i>M</i> | <i>R</i> | <i>F</i> | <i>F</i> | <i>0.1'</i> | <i>W</i> | <i>no odor, no stain</i> <i>Trace gravel upto 38'</i> | <i>MH</i> | <i>∇ → 34.5</i> |
| 40 | | | | | <i>B</i> <i>R</i> <i>A</i> <i>T</i> <i>H</i> <i>Z</i> | | | | | | | | | | | | | | | | <i>38' to 46' no gravel</i> | | | |
| 45 | | | <i>3:05</i> <i>0.0</i> | | | | | | | | | | | | | | | | | | | <i>Trace gravel betⁿ 46-47'</i> | | |
| 50 | | | <i>1:50</i> <i>0.0</i> <i>55'</i> | | | | | | | | | <i>Same as above</i> | | | | | | | | | | <i>No gravel betⁿ 47' to 53' bgs</i> <i>no stain, no odor</i> | | |
| 55 | | | | | | | | | | | | <i>Total depth → 55ft</i> | | | | | | | | | | <i>Sandy betⁿ 53.5' to 54.5'</i> | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | coarse, med Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | Odor, Staining, Mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronex
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: *Arina Regmi* ~~Chris Debarndt~~
 DATE DRILLED: *06/28/08*
 DRILLING COMPANY: Boart-Longyear
 NORTHING:

my L
BORING NUMBER: M 123
 TOTAL DEPTH: *51 ft*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | | | | |
|--------------|---------|---------------|------|-------------------------|-------------|---------------|----------------------|--------|--------|--------|------|-------|------------------------------|---------------------------------------|------------|------------|-------------------------|-----------------------|-----------------|-------------|-------------------------|---------|----------------|--|-----------------------|--|--------------|--|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers | | | | | |
| 0-5 | | | | <i>2.05</i> 0.0 ① | V I | <i>10 ft</i> | 5 | 95 | | | | | <i>Sw - well graded Sand</i> | <i>10YR 4/4 dark yellowish brown.</i> | | | | | SA SR | F | F | 1.8" | W | <i>no odor, no stain caliche lenses</i> | SW | | | |
| 5-10 | | | | <i>1.46</i> 0.0 ① | B R A | <i>10 ft</i> | | | | | | | <i>Same as above</i> | | | | | | | | | 1.7" | | <i>gravelly zone from 3' to 4' bgs</i> | | | | |
| 10-15 | | | | <i>1.29</i> 0.0 ① | T I | <i>10 ft</i> | | | | | | | <i>Same as above</i> | | | | | | | | | 8" | | <i>gravelly zone from 20' to 22'</i> | SW | | | |
| 15-20 | | | | <i>20</i> | O N | <i>10 ft</i> | | | | | | | | | | | | | | | | | | <i>strong caliche zone from 22' to 25'</i> | | | | |
| 20-25 | | | | | | | | | | | | | <i>Transition zone</i> | <i>SM - silty sand 7.5YR 5/4</i> | M | M | | | LSR | | F | F | 0.1 | W | | | <i>26 ft</i> | |
| 25-28 | | | | | | | | | | | | | <i>Brown clay</i> | <i>7.5YR 5/6</i> | M | D | | | M | R | F | F | 0.5" | P | <i>Muddy Creek fm</i> | | <i>28 ft</i> | |
| 28-30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes: Drilled 0' to 28' → 06/28/08
 Drilled 28' to → 06/29/08



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Anita Regni ^{Chris Drabant}
 DATE DRILLED: 06/29/08
 DRILLING COMPANY: Boart-Longyear
 NORTHING:

BORING NUMBER: ^{py. 2} M-123
 TOTAL DEPTH: 51 ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | |
|--------------|---------|---------------|------|---------------------|------------------|---------------|----------------------|--|-------------|--|-------------------------|------------------------|----------|---------------------------|--------------------------|--------------|-------------------------|-------------|-------------------------|----------------------------------|---|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers |
| 30 | | | | 30.6 0.0 30.0 | V | 10 ft | | | | | MH-elastic silt | 7.5YR 5/6 strong brown | W | D | M | R | F | F | 1.7' | P | no odor, no stain | | |
| 35 | | | | 30.5 0.5 40.1 | I B R | | | | | | | | | | | | | | | | strong caliche zone 28' to 29' bgs and 34.5' to 35.5' | MH | |
| 40 | | | | 40.1 | A | 5 ft | | | | | same as above | same as above | | | | | | | | | ▼ → 39.3' weak vac odor | | |
| 45 | | | | 40.6 7.9 50.0 | T I O N | 6 ft | | | | | | | | | | | | | | | strong caliche nodules ~ 2" from 44' to 48' bgs weak vac odor | | |
| 50 | | | | 50.0 | N | | | | | | Total Depth 51 ft | | | | | | | | | | | 51 → | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regmi
 DATE DRILLED: 06/28/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: M-124 Pg 1

TOTAL DEPTH: 49ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | |
|--------------|---------|---------------|------|--------------------|-------------|---------------|----------------------|--------|--------|--------|-----------------------------------|-----------------------------|----------|---------|------------|------------|-------------------------|-----------------------|-----------------|---------|---|--|----------------------|------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | grading | | | Additional Modifiers | |
| 0-5 | | | | 0.3 0.0 0.5' | U I B | 10ft | 5 | 95 | | | SW-well graded Sand, trace gravel | 10YR 4.5/14 yellowish brown | D | poor | N | SA SR | SA SR F | C | 2.5" | W | no odor, no stain fines and from 2.5 to 2', 10YR 6/3 pale brown | SP | 18ft | |
| 5-10 | | | | 0.2 0.0 10' | R A T | 10ft | | | | | Same as above | | | | | | | | 2" | W | caliche lenses | | | |
| 10-18 | | | | 0.3 0.0 20' | O N | 10ft | 1 | 100% | | | SP-poorly graded Sand | 10YR 5/4 yellowish brown | D | L | N | SA SR | F | M | 1.5" | P | no odor, no stain | SP | 20ft | |
| 18-20 | | | | 0.3 0.0 20' | | 10ft | 0 | 80 | 40 | | SM-Silty Sand | 7.5YR 5/4 brown | M | L | L | SR | | F | | | P | no odor, no stain | SM | 23ft |
| 20-25 | | | | 0.4 0.0 30' | | | 10 | 90 | | | MH-Elastic silt, trace clay | 7.5YR 5/4 brown | M | D | M | R | | F | | | P | Muddy Creek Formation caliche nodules | MH | 23ft |

Notes:

>1/4 inch
 visible - 1/4 in.
 visible with hand lens
 not visible
 see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)
 use Munsell color chart
 Dry Moist Wet
 coarse, when Dense, D, Sand
 Non High Med Low
 Angular, SA, SR, Rounded
 Fine, Coarse
 Fine, Med, Coarse
 in inches
 Poorly, Well
 Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: *Anita Regmi*
 DATE DRILLED: *06/28/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: *M-124*

TOTAL DEPTH: *49ft*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

Pg. 2

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | |
|--------------|---------|---------------|------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|-------------------------------|-----------------|----------------------------|------------------|--------------------------|-------------------------|-----------------------|-----------------|-------------|----------------------------------|-------------------------|--|--------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | grading | | | Additional Modifiers | |
| 35 | | | | | | 10ft | | 10 | 90 | | | MH-Elastic Silt, trace clay | 7.5YR 5/4 brown | M | D | M | R | | F | | P | Caliche nodules ~ 1.5' | MH | |
| | | | | 1.2 @ 0.0 | | | | | | | | Same as above | | | | | | | | | | | Strong caliche zone @ 46' and 49' bgs. | ▽ 36ft |
| 40 | | | | 46.1 | | 9ft | | 90 | | | | MH-Elastic Silt, trace gravel | 7.5YR 5/4 brown | M | D | M | R | F | F | 1.5" | P | no odor, no stain | | |
| 45 | | | | 0.9 @ 0.0 | | | | 10 | 90 | | | | | | | | | | | | | | | |
| 50 | | | | 49' | | | | | | | | Total depth | | | | | | | | | | | | 19ft |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | loose, fine Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly Well | Odor, Staining, Mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1

GEOLOGIST: ^{ry.1} Anita Regnier ~~Chris Drabandt~~
 DATE DRILLED: 06/29/08
 DRILLING COMPANY: Boart-Longyear
 NORTHING:

BORING NUMBER:

M127

TOTAL DEPTH: 50ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

SURFACE ELEVATION:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class | litho. contact (ft bgs) | | | |
|--------------|---------|---------------|------|---------------|------------|---------------|----------------------|--|-------------|--|-------------------------|---------------------------------------|---------------------------|--------------------------|--------------|-------------------|-------------------------|-----------------------|----------------------------------|------------|-------------------------|-------------------------------------|----------------|------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers | |
| 0 | | | 1-2 | 0.0 | V | 10ft | 100% | 95 | 5 | | | SW-well graded Sand | 10YR 5/4 yellowish brown | D | L | N | SA-SR | F | C to M | 0-5" | W | Caliche lenses no odor, no stain | | |
| 10 | | | 0-9 | 0.0 | B | 10ft | | | | | | | | | | | | | | | | | | |
| 15 | | | | | R | 10ft | | | | | | | | | | | | | | | | | | |
| 20 | | | 1-13 | 0.0 | T | 10ft | | | | | | | | | | | | | | | | | | |
| 23ft | | | | | O | 10ft | | | | | | | | | | | | | | | | | | |
| 25 | | | | | N | 10ft | | | | | | Transition Zone | 10YR 5/4 | M | M | | SA-SR | F | M to F | 1" | P | no odor, no stain | ML | 23ft |
| 30 | | | | | | | | | | | | Muddy Creek formation Elastic Silt | 10YR 4/6 | W | D | M | R | F | F | 0.5" | P | Caliche nodules | MH | 28ft |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5% = trace, 10% = few, 15-25% = little, 30-45% = some, 50% = mostly (cobble only) | use Munsell color chart | Dry Moist Wet | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | | | | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA207

CLIENT: Tronox
JOB NUMBER: 04020-023-4312
LOCATION: Area 1
SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
DATE DRILLED: 6.30.08
DRILLING COMPANY: Bost Longyear WDC
NORTHING:

TOTAL DEPTH: 60 FT BGS
DRILLING METHOD: Sonic
SAMPLE METHOD: Split-Spoon/Trowel
EASTING:

Table with columns: Depth (feet), Samples, Sample Number, Time, FID/PID (ppm), Blow Count, Recovery (ft), % gravel, % sand, % silt, % clay, NAME, COLOR, moisture, density, plasticity, angularity, grain size range/gravel, grain size range/sand, max gravel size, grading, add. modifiers, soil class, litho. contact (ft bgs). Includes handwritten data for samples SA207-05B, SA207-10B, SA207-20, and SA207-20F.

Notes: (COPY PAGE)

Notes regarding soil classification and color chart: >1/4 inch visible - 1/4 in. visible with hand lens, not visible, see USCS flow charts, use Munsell color chart, Dry Moist Wet, Non High Med Low, Angular, SA, SR, Rounded, Fine, Coarse, in inches, Poorly Well, odor, staining, mineralogy, etc.

T = TRACE



SUBSURFACE EXPLORATION LOG

pgl

BORING NUMBER:

WM-125'

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Anita Regni Chris Drabant
 DATE DRILLED: ~~06/30/08~~ 07/01/08
 DRILLING COMPANY: Boart-Longyear
 NORTHING:

TOTAL DEPTH: 50ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | |
|--------------|---------|----------------|------|--------------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|--|---------------------|---------|------------------------|-----------------------------|-------------------------|-------------------------|-----------------|-----------------|---|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers |
| 0-5 | | | | 0-78 0-0 1' | V | 10ft | 51 | 95 | | | Sw-well-graded Sand | 10YR 5/4 yellowish brown | D | L | N | SA SR | F | M to C | 0.5" | W | Caliche lenses no odor, no stain | SW | |
| 5-10 | | | | 1-34 0-0 10' | B R | 10ft | | | | | | | | | | | | | | | | | |
| 10-15 | | | | 0-68 0-0 20' | A T | 10ft | | | | | Same as above | | | | | | | | | | Caliche zone/ Gravelly zone from 14 to 18 | | |
| 15-20 | | | | 0-68 0-0 20' | I O | 10ft | | | | | | | | | | | | | | | | | |
| 20-25 | | | | 1-08 0-0 30' | N | 10ft | | | | | Transition ML-Sandy Silt | Zone 10YR 5/4 yellowish brown | M | M | L | SA SR | F | M to P | 0.5" | P | | ML | 28ft |
| 25-30 | | Muddy Creek Fm | | 1-08 0-0 30' | | 10ft | | | | | MH-elastic Silt | 7.5YR 4/4 Brown | W | L | M | R | F | F | 0.4" | P | strong caliche (Dry) zone 28.5 to 29.5 caliche nodules - 28-30' | 28ft | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Anita Regnier Chris Drabant
 DATE DRILLED: 07/01/08
 DRILLING COMPANY: Boart-Longyear
 NORTHING:

B2 BORING NUMBER: M-125
 TOTAL DEPTH: 50ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | | |
|--------------|---------|---------------|------|---------------|------------|---------------|----------------------|--------|--------|--------|-----------------|----------------|----------|---------|------------|------------|-------------------------|-------------|-------------------------|-----------------------|-----------------|---------|----------------|--|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers | |
| 30 | | | | | | 10ft | | | | | MH-Elastic Silt | 7.5R 4/4 Brown | W | L | M | SR | F | F | 1" | P | | MH | | |
| 35 | | | | 2.42 | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | 4.85 | | 10ft | | | | | | | | | | | | | | | | | | |
| 45 | | | | 8.85 | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | 13.85 | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

- > 1/4 inch
- visible - 1/4 in.
- visible with hand lens
- not visible
- see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)
- use Munsell color chart
- Dry Moist Wet
- Non High Med Low
- Angular, SA, SR, Rounded
- Fine, Med, Coarse
- in inches
- Poorly, Well
- odor, staining, mineralogy, etc.

Handwritten notes in log:

- 10ft recovery at 30-40ft depth
- 10ft recovery at 40-50ft depth
- Same as above (45-50ft)
- Total Depth (50ft)
- patches nodules from 34' to 36'
- GW 36.7'
- strong caliche zone from 46' to 48'
- Sandy from 46.5' to 47.5'
- strong caliche zone @ 48'
- strong odor from 48' to 50'

SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA207

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.1.08
 DRILLING COMPANY: ~~Boart Longyear~~ WDC
 NORTHING:

TOTAL DEPTH: 60 FT BGS
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | |
|--------------|---------|--|------|---------------|------------|---------------|----------------------|--------|--------|--------|---|-------------------------------------|----------------|---------|------------|------------|-------------------------|-----------------------|-----------------|-------------|--|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers |
| 30 | | SA207-30B M3MSD @ 940 107.8°F | 940 | 0.0/0.0 | - | 5 FT | 10 | 75 | 5 | - | POORLY GRADED SAND w/ GRAVEL | MOD YELLOWISH BROWN 10YR 5/4 | D | D | N | SA SR | F | C M F | 0.7 | P | AMB 108.3° | SP | |
| 35 | | | 1030 | | | | | | | | DISCEMENTED COUCHE MUEW/UBER UNIT 1 MUD | | D | D | N | SA | | | | | TRANSITION ZONE | GP/GM | 34 FT BGS |
| 38 | | | 1100 | 0.9 0.0 | - | 5 FT | - | 5 | 80 | 15 | CLAYEY SILT | MOD-DK YELLOWISH BROWN 10YR 5/4-1/2 | SIGMA MOIST | FIRM | L | SA SR | - | F VF | - | P | | ML | 36 FT BGS |
| 40 | | SA207-40B @ 1120 125.4°F | 1130 | 0.9 0.0 | - | 5 FT | - | 5 | 75 | 20 | SAA | SAA | M | SOFT | L | SA | - | F | - | P | AMB 109.2° SOIL DAMP @ 41 FT BGS | | |
| 45 | | 450 FT BGS = 6W | 1230 | 0.0 0.0 | - | 5 FT | - | T | 75 | 25 | SILTY CLAY | SAA | M | SOFT | M | SA | F | F T | - | P | | CL | 47 FT BGS |
| 50 | | | 1300 | 0.9 0.0 | - | 5 FT | | | | | SAA | SAA | | | | | | | | | AMB 110.8° | | |
| 55 | | | 1320 | 0.9 0.0 | - | 5 FT | | | | | SAA | SAA | | | | | | | | | | | |
| 60 | | | | | | | 20 | 10 | 20 | | SILT w/ SAND | SAA | M | FIRM | L | SA SR | - | F M | - | P | BLACK SAND | ML | 59 FT BGS |

Notes:
 >1/4 inch visible - 1/4 in. visible with hand lens not visible see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)
 use Munsell color chart.
 Dry Moist Wet
 Non High Med Low
 Angular, SA, SR, Rounded
 Fine, Coarse
 Fine, Med, Coarse
 in inches
 Poorly Well
 odor, staining, mineralogy, etc.

T = TRACE



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA181

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabant
 DATE DRILLED: 7.2.08
 DRILLING COMPANY: Boon Longyear WDC
 NORTHING:

TOTAL DEPTH: 41.5'
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FI/PI/D (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | |
|--------------|-------------------------|--|------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|--|---------------------|---------|------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------|----------------------------------|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers |
| 30 | | 2A 81-325 ① 105 83.2° AMB 105.9° | 1110 | 0.0 / 0.0 | - | 3FT | 5 | 75 | 20 | | CLAYEY SILT | MOD-DK YELLOWISH BROWN 10YR 4/2 | M | 30FT | L | 5/16 | F | - | P | | ML | 30' | |
| 35 | | SA181-35B ① 115 114.7° AMB 106.7° | 1130 | 0.0 / 0.0 | - | 3FT | | | | | SAA | SAA | | | | | | | | | | | |
| 40 | TOTAL DEPTH 41.5 FT BGS | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

Boring/Well ID Number: SA 67

GEOLOGIST: Anita Regmi
 DATE DRILLED: 07/07/08 to 07/08/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

TOTAL DEPTH: 40ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

pg 1 of 2

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | |
|---|---------|---------------|------|----------------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|-------------------------|--------------------------|----------------|------------------|--------------------------|-------------------------|-----------------------|-----------------|--------------|----------------------------------|------------------------------------|--------------------------------|-------|--|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | grading | | | Additional Modifiers | | |
| 0-5' | 0.5L | SA67-05 | 1140 | 1.36 / 0.0 ⊙ 0.5' | V | 10ft | 100 | | | | | Sto-well graded Sand | 10YR 5/4 yellowish brown | D | 6600 | N | SA SR | F | F to C | 1.25 | W | no odor, no smell caliche lens | SW | | |
| 5-10' | | | | | B | | | | | | | | | | | | | | | 1' | | 140° F @ 6' | | | |
| 10-15' | 10' | SA67-10 | 1215 | 1.22 / 0.0 ⊙ 10' | R | 10ft | | | | | | | | | | | | | | 1.5' | | Gravelly bet 7' to 8' @ 9' | | | |
| 15-20' | | | | | A | | | | | | | Same as above | | | | | | | | | | | 121° F @ 10' | | |
| 20-25' | | SA67-20 | 1250 | 1.84 / 0.0 ⊙ 20' | T | | | | | | | | | | | | | | | | | Strong caliche zone bet 12' to 16' | | | |
| 25-30' | | | | | I | | | | | | | | | | | | | | | | | 172° F @ 20' | | | |
| 30-35' | | | | | O | | | | | | | Elastic Silt MH | 7.5YR 5/4 brown | D | VM | J | M | R | F | F | 0.2' / 0.5' | P | Sandy Silt from 20' to 21' bgs | 21 ft | |
| 35-40' | | | | | N | | 5 | 95 | | | | | | | | | | | | | | Muddy Creek fm @ 21' | | | |
| 40' | | SA67-30 | 115 | 9.6 / 0.0 ⊙ 30' | | | | | | | | | | | | | | | | | | 120° F @ 30' | | MH | |
| Notes: collected 5 samples from 5 different depths. | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | Odor, Staining, Mineralogy, etc. | | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regino
 DATE DRILLED: 07/08/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: *RSAN2* *pg 1 of 2*

TOTAL DEPTH: *40ft*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | |
|--------------|---------|----------------------------------|------|-------------------|-------------|---------------|----------------------|--------|--------|--------|---------------------|--------------------------|----------|---------|------------|------------|-------------------------|-----------------------|-----------------|---|-------------------------|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | Additional Modifiers |
| 0-5 | | RSAN2-05- | | 2.2 @ 0.0 0.5' | V | 10ft | 5 | 90 | 5 | | SW-well graded sand | 10YR 5/4 yellowish brown | D | 1.00 | N | SA-SR | F to C | 1.3' | W | Caliche lens 98% @ 0.5' | | | |
| 5-10 | | RSAN2-10 | | 2.6 @ 0.0 10' | B R A | 10ft | | | | | | | | | | | | 1.7' | 111 | 92% @ 10' | | | |
| 10-15 | | | | | T I | | | | | | Same as above | | | | | | | | | Gravelly betw 18' to 20' bgs | | | |
| 15-20 | | RSAN2-20- | | 1.02 @ 0.0 20' | O N | 10ft | | | | | | | | | | | | | | 128% @ 20' | | | |
| 20-25 | | | | | | | | | | | Sandy silt | 10YR 5/4 yellowish brown | Damp | 1.00 | L | SA-SR | F | F | 0.5' | P | transition zone | ML | 22ft |
| 25-30 | | | | | | | | | | | Elastic silt | 7.5YR 5/6 strong brown | Wet | 1.00 | M | R | F | F | | A | Muddy Creek fm | MH | 26ft |
| 30-40 | | RSAN2-30- 31.5 → 2015 | | 0.0 @ 31.9 30' | | | | | | | | | | | | | | | | 84% @ 30', no odor no stain no gravel | | | |

Notes:
 >1/4 inch visible - 1/4 in. visible with hand lens not visible see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) use Munsell color chart Dry Moist Wet Moisture, Density, Sand Non High Med Low Angular, SA, SR, Rounded Fine, Coarse Fine, Med, Coarse in inches Poorly, Well Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA47

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabant
 DATE DRILLED: 7.8.08
 DRILLING COMPANY: Board Longyear WDC
 NORTHING:

TOTAL DEPTH: 41.5 FT 36.5
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | | |
|---|---------|---|------|---------------|------------|----------------|----------------------|-------------------|------------------------|-------------|--|--|-----------------|----------|------------------|--------------------------|-------------------------|-------------------|-------------------------|-----------------------|----------------------------------|---------|----------------|--|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers | |
| 5 | | SA47-055 @ 2300 98°F AMS 94.4° | 0010 | 0.0 0.0 | - | LIAND AUGER | 10 | 80 | 10 | - | POORLY GRADED SAND W/SILT | MOD YELLOWISH-BROWN OVR 1/4 | D | MOD L | N | SA SR | F C | F C | 1.25' | P | | SP/SM | | |
| 10 | | | 0030 | 0.0 1.3 | - | S FT | 10 | 80 | 10 | - | SAA | SAA | | L | | | | | | | | | | |
| 15 | | SA47-105 @ 110 181°F AMS 93.2° | 100 | 0.0 6.8 | - | S | | | | | SAA | SAA | | | | | | | | | | | 14' | |
| 20 | | | 120 | 0.0 2.2 | - | S | 10 | 85 | 5 | - | POORLY GRADED SAND | SAA | | | | | M F | | 3' Tr | P | | SP | | |
| 25 | | SA47-205 @ 130 121°F AMS 89.2° | 200 | 0.0 1.3 | - | 3 | 50 | 45 | 5 | | POORLY GRADED SAND W/SAND CALICHE SANDY SILT | PALF YELLOWISH-BROWN OVR 1/2 DK YELLOWISH-BROWN OVR 1/2 | D | D | N | SA SR | F M | F M | 3' | P | CALICHE LAYER | GP | 21' 23' | |
| 30 | | | 230 | 0.0 5.2 | - | 3 | | | | | SAA | SAA | | | | | | | | | | | | |
| Notes: @ 10' SAMPLE NO RECOVERY FROM SPLIT SPOON. NO SAMPLE TAKEN FROM SAC. | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry, Moist, Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | | |



BORING NUMBER: SA47

SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.8.08
 DRILLING COMPANY: Barton Longyear WDC
 NORTHING:

TOTAL DEPTH: 41.5 FT BGS
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | |
|--------------|---------|---|----------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|--------------------------------|---------------------|---------|---------------------------|-----------------------------|-------------------------|-------------------------|-----------------|-----------------|----------------------------------|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers |
| 30 | | SA47-30B @245 82.2°F AMB 86.0° | 250 | 0.0 9.0 | - | 5 | - | 70 | 50 | 30 | CLAYEY SILT | DK YELLOWISH BROWN 10YR 4/2 | M | SOFT | M | SA SR | - | F VF | - | P | MOIST @ 30' BGS | CL | 30' |
| 35 | | SA47-35B @306 99.9°F AMB 86.5° | 255 | 0.0 10.0 | - | 5 | | | | | SAA | SAA | | | | | | | | | | | |
| 40 | | | | | | | | | | | SAA | SAA | | | | | | | | | | | |
| TOTAL DEPTH | | | 41.5 BGS | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA183

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabant,
 DATE DRILLED: 7.8.08
 DRILLING COMPANY: ~~Boart Longyear~~ WDC
 NORTHING:

TOTAL DEPTH: 41.5' BGS
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/FID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | | |
|--------------|---------|--|------|---------------|------------|---------------|----------------------|--|-------------|--|--|---------------------------------|-------------------------|---------|---------------------|---------------------------|-------------------------|-----------------|-------------------------|-----------------------|-----------------|----------------------------------|----------------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers | |
| 5 | | SA183-055 @2145 77.9° AMS963° | 2150 | 0.3 0.0 | - | 5ft | 10 | 85 | 5 | - | CONCRETE POORLY GRADED SAND/W/ GRAVEL | MOD YELLOWISH BROWN 10YR 4/4 | D | L | N | SA SR | F M | C 3/1 FIR | 0.75 | P | | X | 1 FT | |
| 10 | | | 2140 | 0.0 0.0 | - | 5ft | | | | | SFA | SFA | | | | | | | | | | | | |
| 15 | | SITES-10B @2145 DUPLICATE COLLECTED 98.7° AMS963° | 2155 | 0.1 0.0 | - | 5ft | | | | | SFA | SFA | | | | | | | | | | | | |
| 20 | | | 2200 | 0.2 0.3 | - | 5ft | 50 | 40 | 10 | | POORLY GRADED GRAVEL W/ SAND | ALIVE CHECK WHITE/BROWN | D | D | N | SA SR | C F | C F | 3' | P | | | | 10 FT 18 FT |
| 25 | | SA183-20B @2205 77.9° AMS963° | 2210 | 0.0 0.0 | - | 5 | | 30 | 60 | 10 | SANDY SILT | DK YELLOWISH BROWN 10YR 4/2 | DAMP | L | N | SA SR | M F | F | 0.5 | P | | | | 75 FT |
| 30 | | | 2270 | 0.4 0.6 | - | 5 | | 10 | 60 | 30 | CLAYEY SILT | SFA | M | FIRM | L | SA SR | - | VF | - | P | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | | | use Munsell color chart | | Dry Moist Wet | Non High Med Low | SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA183

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.8.08
 DRILLING COMPANY: Board Longyear UDC
 NORTHING:

TOTAL DEPTH: 41.5' BGS
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | |
|--------------|--------------------------------|---------------|------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|---|-------------------------|-----------------------|---------|---------------------------|-----------------------------|-------------------------|-------------------------|-----------------|-----------------|----------------------------------|---------|----------------|------------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers | |
| 30 | SA183-305 @ 2235 77.7° | | 2230 | 0.0 0.0 | - | S | | 5 | 65 | 30 | | CLAYEY SILT | DK Yellowish BROWN | M | soft | L | - | - | VF F | - | P | | CL | |
| 35 | SA183-335 @ 2250 AMS 485 | | 2240 | 0.0 0.0 | - | S | | | | | | SAA | SAA | | | | | | | | | | | GW 575 365 |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | 41.5 ft |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+%=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regmi
 DATE DRILLED: 07/09/2008
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: R9A02

TOTAL DEPTH: 40ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

Vg 1 of 2

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | |
|--------------|---------|---------------|------|---------------------|------------|---------------|----------------------|--------|--------|--------|---|--------------------------|----------|---------|------------|------------|-------------------------|------------------|-------------------------|-----------------------|--|---------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading |
| 0-5 | | R9A02-0.5' | 0130 | 0.58 0.0 0.5' | V | 10ft | 5 | 90 | 5 | | Well graded Sand | 10YR 5/4 yellowish brown | D | 6000 | N | SA-SR | F | M to C | 0.5' | W | 94°F @ 0.5' | SW |
| 5-10 | | R9A02-10 | 0220 | 0.30 0.0 101 | B | 10ft | | | | | | | | | | | | | | | no odor, no stain caliche lenses | |
| 10-15 | | | | | R | | | | | | | | | | | | | | | | no odor, no stain | |
| 15-20 | | R9A02-20 | 0240 | 2.71 0.0 201 | A | 10ft | | | | | Same as above | | | | | | | | | | Gravelly from 14' to 16' bgs 17' to 18' strong caliche zone | |
| 20-25 | | | | | T | 10ft | 5 | 35 | 55 | 5 | Sandy silt Muddy Creek Elastic silt | 10YR 5/4 Fm | W | Med | L | SA | F | F to M | 0.5' | P | 109°F @ 20' Transition zone | 22ft |
| 25-30 | | | | | I | | 5 | 90 | 5 | | | | | | | | | | | | no odor, no stain | MH |
| 30-35 | | | | | O | | | | | | | | | | | | | | | | | |
| 35-40 | | R9A02-30 | 0250 | 39.2 0.6 301 | N | 10ft | | | | | | 7.5YR 5/6 strong brown | W | D | M | R | BF | F | 0.2' | P | 81°F @ 30' | |

Notes:

>1/4 inch visible - 1/4 in. visible with hand lens not visible see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=most (cobbles only) use Munsell color chart Dry Moist Wet coarse, med Dense, D. Sand Non High Med Low Angular, SA, SR, Rounded Fine, Coarse Fine, Med, Coarse in inches Poorly, Well Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regmi
 DATE DRILLED: 07/09/2008
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: RSA02

TOTAL DEPTH: 40ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | |
|--------------|---------|---------------|------|----------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|-------------------------|---------------|----------------------------|------------------|--------------------------|-------------------------|-----------------------|-----------------|-------------|--|-------------------------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | grading | | | Additional Modifiers |
| 35 | | RSA02-33 | 0340 | 115/308 38' | V | 10ft | 1 | 5 | 90 | 5 | Elastic Silt | 10YR 5/6 strong brown | W | D | M | R | F | F | 0.2' | P | MC color from 31' to 40' Gravel from 30 to 32' | MH | |
| 40 | | | | 150/375 40' | B | 10ft | | | | | Same as above | | | | | | | | | | 82°F @ 33' | | |
| 40 | | | | | R | 10ft | | | | | Total Depth | | | | | | | | | | | | |
| 45 | | | | | A | | | | | | | | | | | | | | | | | | |
| 50 | | | | | T | | | | | | | | | | | | | | | | | | |
| 55 | | | | | H | | | | | | | | | | | | | | | | | | |
| 60 | | | | | O | | | | | | | | | | | | | | | | | | |
| 60 | | | | | Z | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | coarse, med Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly Well | Odor, Staining, Mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

Boring/Well ID Number: **RSAT7**

GEOLOGIST: **Anita Regmi**
 DATE DRILLED: **07/09/08**
 DRILLING COMPANY: Boart Longyear
 NORTHING:

TOTAL DEPTH: **30'**
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | |
|--------------|------------|---------------|------|---------------------|------------|---------------|----------------------|--------|--------|--------|-------------------------|--|----------|---------|------------|------------|-------------------------|-----------------------|-----------------|------------------|---|---|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | Additional Modifiers |
| 0-5 | | RSAT7-0-S | 2055 | 1.04 0.0 0.51 | V | 10ft | 5 | 90 | 5 | | Well graded Sand | 10YR 4/4 dark yellowish brown from 0 to 1' | D | L | N | SA-SR | F | C & T | 1.8' | W | 148°F @ 0.5' nodor, no stain caliche lenses gravelly from 0 to 8' | SW | |
| 5-10 | | RSAT7-10 | 2130 | 0.59 0.0 10' | I | 10ft | | | | | SSA | 10YR 5/4 yellowish brown from 1' | | | | | | | | | 106°F @ 10' | | |
| 10-15 | | | | | B | | | | | | | | | | | | | | | | | | |
| 15-20 | | | | | R | | | | | | | | | | | | | | | | | | |
| 20-25 | | RSAT7-20 | 2140 | 0.48 0.0 20' | A | | | | | | Same as above | | | | | | | | | | | strong gravelly zone from 14' to 16' | |
| 25-30 | | | | | T | | | | | | | | | | | | | | | | | 112°F @ 20' | |
| 25-27 | Geo-23 bgs | | | | I | | 20 | 15 | 65 | | Gravelly silt with Sand | 10YR 5/6 | M | M | L | R | F | F | 1.5' | P | | Medley Creek Formation 22 ft gravelly from 20' to 22' | ML |
| 27-30 | | | | | O | | | 5 | 90 | 5 | Elastic silt | strong brown | W | D | M | R | F | F | 0.7' | P | | with caliche nodules ~1.5' | MH |
| 30 | | | | 0.29 0.0 30' | N | | | | | | Total depth 30ft | | | | | | | | | | | 79°F @ 30' | |

Notes:
 >1/4 inch use Munsell color chart
 visible - 1/4 in. Dry Moist Wet
 visible with hand lens Dense, D. Sand
 not visible non High Med Low
 see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)
 use Munsell color chart
 Angular, SA, SR, Rounded
 Fine, Coarse
 Fine, Med, Coarse
 in inches
 Poorly, Well
 Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA46

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.9.08
 DRILLING COMPANY: Beart Longyear WDC
 NORTHING:

TOTAL DEPTH: 45' BGS
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | |
|---|---------|--|------|----------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|---------------------------------------|---------------------|---------|---------------------------|-----------------------------|-------------------------|-----------------------|-----------------|----------------------------------|-------------------------|-----------------------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading |
| 30 | | SA46-30B @ 2341 78.4° AMB 97.0° | 2345 | 0.0 0.0 | - | 5 | - | 5 | 75 | 20 | CLAYEY SILT | MOD YELLOWISH BROWN 10YR 4/2 | M | FIRM | L | - | - | VF | - | P | CL | GW @ 35.5' BGS |
| 35 | | | | 0.0 7.10.08 | - | 5 | | | | | SAA | SAA | M | | | | | | | | | BROWN MOTTLING @ 37' BGS |
| 40 | | | | 0.0 7.10.08 | | 5 | | | | | SAA | SAA | W | SOFT | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | |
| Notes: NO GW @ 40'. GROUNDWATER ENTERED BOREHOLE @ 45' BGS. | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



BORING NUMBER: RSAO4

SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
JOB NUMBER: 04020-023-4312
LOCATION: Area 1
SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
DATE DRILLED: 7.9.08
DRILLING COMPANY: Bear Longyear WDC
NORTHING:

TOTAL DEPTH: 41.5 FT BGS
DRILLING METHOD: Sonic
SAMPLE METHOD: Split-Spoon/Trowel
EASTING:

Table with columns: Depth (feet), Samples, Sample Number, Time, FID/PID (ppm), Blow Count, Recovery (ft), % gravel, % sand, % silt, % clay, NAME, COLOR, moisture, density, plasticity, angularity, grain size range/gravel, grain size range/sand, max gravel size, grading, add. modifiers, soil class, litho. contact (ft bgs). Includes handwritten data for depths 0-30 feet.



BORING NUMBER: RSAO4

SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.9.08
 DRILLING COMPANY: ~~Boart Longyear~~ WDC
 NORTHING:

TOTAL DEPTH: 41.5 FT BGS
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | |
|--------------|-----------------------|---|------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|---------------------------------------|---------------------|---------|---------------------------|-----------------------------|-------------------------|-------------------------|-----------------|-----------------|----------------------------------|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers |
| 30 | RS A04-30B | RS A04-30B @410 | 425 | 0.2 0.1 | - | 5 | | 10 | 60 | 30 | CLAYEY SILT | DK YELLOWISH BROWN 10 YR 4/2 | M | SOFT | L | - | - | VF | - | P | | CL | |
| 35 | | RS A04-36B @445 | 435 | 0.0 0.1 | - | 5 | | | | | SAA | SAA | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | GW @ 41' |
| | | TOTAL DEPTH 41.5 FT BGS GW @ 41 FT BGS | | | | | | | | | | | | | | | | | | | | | 41.5 |
| 45 | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: SA48

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.10.08
 DRILLING COMPANY: ~~Beard Longyear~~ WDC
 NORTHING:

TOTAL DEPTH: 41.5'
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | |
|--------------|---------|---------------------------------------|------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|---------------------------------|---------------------|---------|---------------------------|-----------------------------|-------------------------|-------------------------|-----------------|-----------------|----------------------------------|---------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers |
| | | SA48-305 ①②③④⑤ 80° AMB 90° | 420 | 1.0 0.0 | - | 5 | - | 5 | 70 | 25 | CLAYEY SILT | MOD YELLOW BROWN LOYR 5/4 | M | FIRM | L | - | - | VF | - | P | | CL | |
| | | SA48-353 ①②③④⑤ 87.4° AMB 90° | 425 | 1.5 0.0 | - | 5 | | | | | SAA | SAA | | | | | | | | | | | |
| | | | 435 | | | 1.5 | | | | | | | | | | | | | | | | | |
| | | TOTAL DEPTH ③ 41.5' BGS | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: *Anita Regmi*
 DATE DRILLED: *07/10/08*
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: *RSAK7*

TOTAL DEPTH: *33'*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | | |
|--------------|---------|---------------|------|-------------------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|--|---------------|---------------------------|------------------|--------------------------|-------------------------|-------------------|-------------------------|-----------------------|----------------------------------|---------|----------------------|--|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | Additional Modifiers | |
| 05 | | RSAK7-05 | 0100 | 0-1 0-0 Ⓢ 0.5' | V | 10ft | 0 | 90 | 5 | | Gravelly, well graded Sand | 10YR 4/4 dark yellowish brown from 0 to 1' | D | L | N | SA SR | F | F C to | 1.5' | W | 122°F @ 0.5' | SW | | |
| 10 | | | | | H | | | | | | | | | | | | | | | | | | | |
| 15 | | RSAK7-10 | 0135 | 0-12 0-0 Ⓢ 10' | B | 10ft | | | | | | | | | | | | | | | 118°F @ 10' | | | |
| 20 | | | | | R | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | A | | | | | | | | | | | | | | | | | | | |
| 26 | | RSAK7-20 | 0200 | 0-27 0-0 Ⓢ 20' | T | 10ft | | | | | | | | | | | | | | | | | | |
| 27 | | | | | I | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | N | | | | | | | | | | | | | | | | | | | |
| 29 | | RSAK7-27 | | 0-13 0-0 Ⓢ 30' | O | | 20 | 15 | 65 | | Gravelly silt + w/ Sand | 10YR 5/6 | M | M | L | R | F | F to | 0.9 | P | | | | |
| 30 | | | | | N | | | | | | Elastic silt | 10YR 5/6 strong brown | W | D | M | R | F | F | 2.5' | D | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | Loose, Med Dense, D. Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | Odor, Staining, Mineralogy, etc. | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regmi
 DATE DRILLED: 07/11/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: **RSAT8**

TOTAL DEPTH: **40ft**
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

pg 1 of 2

| Depth (feet) | Samples | Sample Number | Time | FID/IPID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | | |
|--------------|---------|---------------|---------------------------------|---------------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|--------------------------|---------------------|----------------------------------|---------------------------|-----------------------------|------------------|-------------------------|-------------------------|-----------------------|--|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | | | grain size range/gravel | grain size range/sand | max gravel size | grading | Additional Modifiers |
| 5 | | RSAT8-05 | 2315 | 0.74 0.0 0.5' | V I | 10ft | 5 | 90 | 5 | | Well graded Sand | 10YR 6/4 yellowish brown | D | L | U | SA SR | F | F to C | 1.6" | W | 105°F @ 0.5' | | |
| 10 | | RSAT8-10 | 2330 | 0.17 0.0 101 | B R | 10ft | 15 | 80 | 5 | | Same as above | | | | | | | | 1" | | 100°F @ 10' | | |
| 15 | | | | | A | | | | | | well graded Sand w/ gravel | | | | | SA | | | 16" | | Gravelly from 16'-18' | | |
| 20 | | RSAT8-20 | 2345 | 0.0 0.0 20' | T I | 10ft | | | | | | | | | | | | | 1.7" | | no odor, no stain | | |
| 25 | | RSAT8-30 | 0155 1455 0055 | 0.06 0.0 30' | O N | 10ft | 15 | 80 | 5 | | Gravelly sand | | | | | | | | 3" | | 18' to 20', mostly Sand, trace gravel 102°F @ 20' | | |
| 30 | | | | | | | | | | | | | | | | | | | | | larger gravel bet ⁿ 22' to 24' | | |
| | | | | | | | | | | | | | | | | | | | | | catiche lenses Gravelly bet ⁿ 27' to 30' | | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | coarse, med Dense, D, Sand | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly Well | Odor, Staining, Mineralogy, etc. | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regni
 DATE DRILLED: 07/11/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: RSAJ8

TOTAL DEPTH: 41 ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

pg 2 of 2

| Depth (feet) | Samples | Sample Number | Time | FID/ID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | | |
|--|--------------|---------------|------|--------------|------------|---------------|----------------------|--|-------------|--|---------------------------|--|---------------------------------|------------------------|----------------------------|-------------------------|-------------------------|-----------------------|----------------------------------|------------------|-------------------------|---------|----------------------|---|----|-------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | Additional Modifiers | | | |
| | | RSAJ8-33 | 0122 | | | 10 ft | | | | | conglomerate | grain size - fine gravel to coarse sand no odor, no stain | | | | | | | | | | | | | | |
| 35 | ▼ → gw @ 36' | | | 0.94 40.0 | | | | 5 | 90 | 5 | Elastic silt yellowish | 10YR 5/4 strong brown | W | D | M | R | F | F | 0.4' | P | | | | Muddy Creek Fm caliche nodules no odor no stain 84°F @ 41' - 42 ft | MH | 35 ft |
| 40 | | | | | | | | | | | total depth | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: Additional sample @ 33' b'coz new material, etc | | | | | | | > 1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5% = trace, 10% = few, 15-25% = little, 30-45% = some, 50%+ = mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | Loose, med Dense, D. Sand | Non High Med Low | Angular, SA SR, Rounded | Fine, Med, Coarse | in inches | Poorly Well | Odor, Staining, Mineralogy, etc. | | | | | | | |



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox LLC
 JOB NUMBER: 04020-023-4312
 LOCATION: Henderson, NV
 SURFACE ELEVATION:

GEOLOGIST: Anita Regmi
 DATE DRILLED: 07/11/08
 DRILLING COMPANY: Boart Longyear
 NORTHING:

Boring/Well ID Number: RSAI7 Pg 1 of 2
 TOTAL DEPTH: 40ft
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | USCS soil class. | litho. contact (ft bgs) | | | | |
|--------------|---------|---------------|------|---------------------|---|---------------|----------------------|--------|--------|--------|--------------------|--------------------------|----------|---------|------------|------------|-------------------------|------------------|-------------------------|-----------------------|--|---------|----------------------|
| | | | | | | | % Gravel | % Sand | % Silt | % Clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | Additional Modifiers |
| 5 | | RSAI7-05 0335 | | 0.73 0.00 0.5 | V I B R A T I O N | 10ft | 5 | 90 | 5 | | well graded Sand | 10YR 5/4 yellowish brown | D | L | N | SA SR | F | M C | 1.2' | W | 11°F @ 0.5' Gravelly from 2' to 6' caliche nodules | SW | |
| 10 | | RSAI7-10 355 | | 2.48 0.00 10' | | 10ft | | | | | SAA | | | | | | | | | | 123°F @ 10' | | |
| 15 | | | | | | | | | | | SAA | | | | | | | 1.8' | | | Gravelly from 16' to 18' no odor, no stain | | |
| 20 | | RSAI7-20 440 | | 0.69 0.00 20' | | 10ft | | | | | SAA | | | | | | | | | | 121°F @ 20' | | |
| 25 | | RSAI7 | | | | | | 1 | 95 | 5 | poorly graded Sand | | D | L | N | # | | F to M | 0.5' | P | no odor, no stain | SP | |
| 30 | | RSAI7-30 530 | | 0.07 0.00 30' | | | | | | | | | M | L | N | SA SR | F | M to C | 1.5' | W | Gravelly from 26' to 30' 173°F @ 30' | SW | |

Notes:
 >1/4 inch visible - 1/4 in. visible with hand lens not visible see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) use Munsell color chart Dry Moist Wet Moist. Wet Dense, D. Sand Non High Med Low Angular, SA, SR, Rounded Fine, Coarse Fine, Med, Coarse in inches Poorly, Well Odor, Staining, Mineralogy, etc.



SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: *Anita Ragini* ~~Chris Drabant~~
 DATE DRILLED: *07/11/08*
 DRILLING COMPANY: Boart-Longyear
 NORTHING:

BORING NUMBER: *RSA 17*
 TOTAL DEPTH: *40ft* *Pg 2 of 2*
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) |
|--------------|---------|-------------------|-------------|---------------------|------------------|---------------|---|----------------------|---|--------------------|--|---------------------------------|----------------------|-------------------------|---------------------------------|---------------------|--------------------------|-----------------------|--|---|-------------------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | |
| 30 | | <i>RSA 17-32'</i> | <i>5:45</i> | <i>0.58 2.0</i> | <i>VIBRATION</i> | <i>10ft</i> | | <i>5</i> | <i>90</i> | <i>5</i> | <i>Elastic Silt</i> | <i>10YR 5/4 yellowish brown</i> | <i>M D</i> | <i>M R</i> | <i>5 F</i> | <i>5 F</i> | <i>0.5</i> | <i>P</i> | <i>Muddy Creek</i> | <i>MH 30.5ft</i> | |
| 35 | | <i>32.5'</i> | | <i>40'</i> | | | | | | | <i>Same as above</i> | | | | | | | | <i>Caliche nodules</i> | | |
| 40 | | | | | | | | | | | <i>Total depth 40ft</i> | | | | | | | | <i>no odor, no stain clay from 32.5' to 33.5' 35' to 36'</i> | | |
| Notes: | | | | | | | <i>Additional sample @ 32' SPLP @ MCF</i> | <i>> 1/4 inch</i> | <i>visible - 1/4 in. visible with hand lens</i> | <i>not visible</i> | <i>see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only)</i> | <i>use Munsell color chart</i> | <i>Dry Moist Wet</i> | <i>Non High Med Low</i> | <i>Angular, SA, SR, Rounded</i> | <i>Fine, Coarse</i> | <i>Fine, Med, Coarse</i> | <i>in inches</i> | <i>Poorly, Well</i> | <i>odor, staining, mineralogy, etc.</i> | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: RSAL2

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabant
 DATE DRILLED: 7.10.08-7.11.08
 DRILLING COMPANY: Boardman WDC
 NORTHING:

TOTAL DEPTH:
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | |
|--------------|---------|--|------|---------------|------------|----------------|----------------------|--|-------------|--|------------------------------|---|-------------------------|---------|---------------|------------------|--------------------------|--------------|-------------------------|-----------------------|---|----------------------------------|----------------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers |
| 0 | | RSAL2-055 @ Z355 MSAD COLLECTED 970 AMS 98.2° | 0030 | 12 0.0 | - | 5 AIR KNIFE | 10 | 80 | 10 | - | POORLY GRADED SAND W/ SILT | MOD YELLOWISH BROWN 10YR 5/2 | D | VL | N | SA/SR | F/M | C/F | 0.5" | P | @ 4' BGS MED GRAY (NS) 6" LAYER, DISTRICT (U, 4PPM) | SP/SM | |
| 5 | | | 0055 | 2.4 0.0 | - | 5 | 10 | 75 | 15 | - | SILT Y SAND | Pale yellowish brown 10YR 6/2 8' BGS MOD YELLOWISH BROWN | D | L | N | SA/SR | F/C | C/F | 0.75" | P | CALICHE NOBLES @ 6'-9' BGS | SM | 5' |
| 10 | | RSAL2-103 @ 0100 85.2° AMS 87.1° | 0105 | 2.4 0.0 | - | 5 | 15 | 80 | 5 | - | POORLY GRADED SAND W/ GRAVEL | MOD YELLOWISH BROWN 10YR 5/2 | D | L | N | SA/SR | F/C | C/F | 0.75" | P | CALICHE NOBLES @ 15' BGS | SP | 10' |
| 15 | | | 0120 | 2.7 0.0 | - | 5 | 10 | 80 | 10 | - | POORLY GRADED SAND | SAA | D | L | N | SA/SR | F/C | C/F | 0.75" | P | CALICHE NOBLES @ 16-18' MIXED W/ OTHER LAYER | | |
| 20 | | RSAL2-203 @ 0125 78° | 0130 | 3.9 0.0 | - | 5 | T | 25 | 70 | 5 | SILT W/ SAND | V PALE ORANGE-MOD YELLOWISH BROWN 10YR 7/2-5/4 | D | MOD D | N | SA/SR | - | F/UF | RARE 2.0" | P | CALICHE NOBLES + CEMENT MIXED WITH SILT + SAND 20-25' BGS | ML | 20' |
| 25 | | | 0145 | 2.5 0.0 | - | | | 10 | 80 | 10 | SANDY SILT | MOD YELLOWISH BROWN 10YR 5/4 | D | MOD D | L | SA/SR | - | F | - | P | FEW CALICHE NOBLES @ 25' BGS | | |
| 30 | | | | | - | | | 5 | 70 | 25 | CLAYEY SILT | MOD YELLOWISH BROWN 10YR 5/4 | D | FIRM | L | - | - | VF | - | P | | CL | 27' |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | | | use Munsell color chart | | Dry Moist Wet | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | |



BORING NUMBER: RSAL2

SUBSURFACE EXPLORATION LOG

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.10.08-7.11.08
 DRILLING COMPANY: Boardman Longyear WDC
 NORTHING:

TOTAL DEPTH:
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | |
|--------------|-----------------------|------------------|------|---------------|------------|---------------|----------------------|--|-------------|--|-------------------------|------------------------------|----------|---------------------------|--------------------------|--------------|-------------------------|-----------------------|-----------------|----------------------------------|---|---------|----------------|--|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading | add. modifiers | |
| 30 | RSAL2-30B | 00150 | 0155 | 4.8 0.0 | - | - | - | 5 | 70 | 25 | CLAYEY SILT | MOD YELLOWISH BROWN 10YR 5/4 | M | FIM | L | SA SR | - | UF | - | P | CL | | | |
| 35 | RSAL2-37B | 00205 | 0200 | 6.8 0.0 | - | - | - | 5 | 80 | 15 | SILT | DR BROWN STAINING @ 37' | D DM | L | VL | SA SR | - | UF | - | P | CRICHE MODULUS CEMENT @ 36' 438 lbs HYDROCARBON ODOR DETECTED @ 36-40 bgs. STAINING OBSERVED | ML | 36' | |
| 40 | RSAL2-40B | 00220 | 0235 | 9.3 1.7 | - | - | - | 5 | 70 | 25 | CLAYEY SILT | MOD YELLOWISH BROWN 10YR 5/4 | M | FIM | L | SA SR | - | UF | - | P | HYDROCARBON ODOR THROUGHOUT CORE | CC | QW @ 41' V | |
| 45 | TOTAL DEPTH @ 45' BGS | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | | | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: RSAK2

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.11.08
 DRILLING COMPANY: ~~Beard Longyear~~ WDC
 NORTHING:

TOTAL DEPTH: 415'
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | soil class. | litho. contact (ft bgs) | | | | | | |
|--------------|---------|--|------|---------------|------------|------------------|----------------------|--|-------------|--|------------------------------|------------------------------|----------|------------------|--------------------------|--------------|-------------------------|-------------|-------------------------|----------------------------------|-----------------|--------------------------|---|--------|--|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | | | grain size range/sand | max gravel size | grading | add. modifiers | | |
| 0 | | RSAK2-05B @035Z 90° AMB 83.3° | 0446 | 0.3 0.0 | - | HAND ASSESSED | 15 | 80 | 5 | - | POORLY GRADED SAND/W/ GRAVEL | MOD YELLOWISH BROWN (CLR 5H) | D | L | N | SA SR | F M | F C | 0.5" | P | | SP | | | |
| 5 | | | 0500 | 0.7 0.0 | - | 5 | | | | | SAA | SAA | | | | | | | 0.75 | | | CALICHE NODULES @ 7' BGS | | | |
| 10 | | RSAK2-10B @0500 NO RETRIEVAL FROM SPLIT SPD AN. TAKE FROM SAC. LOG AMB 82.4° | 0510 | 1.7 0.0 | - | 5 | | | | | SAA | SAA | | | | | | | | | | | CALICHE NODULES 14-15' BGS | | |
| 15 | | | 520 | 0.2 0.0 | - | 5 | | | | | SAA | SAA | | | | | | | | | | | CALICHE NODULES @ 19' BGS | | |
| 20 | | RSAK2-20B @0520 91° AMB 83.1° | 530 | 0.4 0.0 | - | 5 | 10 | | | | POORLY GRADED SAND | SAA | | | | | | | 1" | | | | SAND SILTY LAYER @ 23' BGS CALICHE NODULES @ 24' BGS | | |
| 25 | | | 540 | 0.7 0.0 | - | 5 | | | | | SAA | SAA | | | | | | | | | | | CALICHE ZONES @ 26-28' BGS EVERY SIX INCHES. | | |
| 30 | | | | | | | 10 | 80 | 10 | | SANDY SILT | MOD YELLOWISH BROWN 10YR 5/4 | D | D | VL | SA SR | - | F K | - | P | | | | ML 29' | |
| Notes: | | | | | | | >1/4 inch | visible - 1/4 in. visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | | | | | |



SUBSURFACE EXPLORATION LOG

BORING NUMBER: RSAK2

CLIENT: Tronox
 JOB NUMBER: 04020-023-4312
 LOCATION: Area 1
 SURFACE ELEVATION:

GEOLOGIST: Chris Drabandt
 DATE DRILLED: 7.11.08
 DRILLING COMPANY: ~~Boart Longyear~~ WDC
 NORTHING:

TOTAL DEPTH: 41.5'
 DRILLING METHOD: Sonic
 SAMPLE METHOD: Split-Spoon/Trowel
 EASTING:

| Depth (feet) | Samples | Sample Number | Time | FID/PID (ppm) | Blow Count | Recovery (ft) | GEOLOGIC DESCRIPTION | | | | | | | | | | | | | soil class. | litho. contact (ft bgs) | |
|--------------|---------|--|-----------------------|---------------|------------|---------------|----------------------|-------------------|------------------------|-------------|--|-------------------------|---------------------|---------|------------------------|--------------------------|-------------------------|-----------------------|-----------------|--------------|----------------------------------|---------|
| | | | | | | | % gravel | % sand | % silt | % clay | NAME | COLOR | moisture | density | plasticity | angularity | grain size range/gravel | grain size range/sand | max gravel size | | | grading |
| 30 | | RSAXI-30B @0545 79.7° AMB 83.4° | 550 | 1.7 0.0 | - | 5 | 10 | 80 | 10 | SANDY SILT | MOD YELLOWISH BROWN 10% % | M | FR | VL | SA SR | - | VF | - | P | ML | 31' | |
| | | | | | | | 5 | 70 | 25 | CLAYEY SILT | MOD YELLOWISH BROWN 10% % | M | FR | L | SA SD | - | VF | - | P | CL | | |
| 35 | | | 600 | 3.0 0.0 | - | 5 | | | | SAA | SAA | | SOFT | | | | VF Gr | | | | | |
| 40 | | | TOTAL DEPTH 41.5' BGS | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | |
| Notes: | | | | | | | > 1/4 inch | visible - 1/4 in. | visible with hand lens | not visible | see USCS flow charts. <5-5%=trace, 10%=few, 15-25%=little, 30-45%=some, 50%+=mostly (cobbles only) | use Munsell color chart | Dry Moist Wet | | Non High Med Low | Angular, SA, SR, Rounded | Fine, Coarse | Fine, Med, Coarse | in inches | Poorly, Well | odor, staining, mineralogy, etc. | |