M/001/059

DRAFT REPORT

Mark Dotson, Earl Harrison
Western Utah Copper Co.
1208 S 200 W
Milford, UT 84751

435 387 5053, fx 5088

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JAN - 6 2003
DIV. OF OIL, GAS & MINING

December 27, 2002
Project No.: not given
Project: Coppergate Apts
Sampling date: 18 Dec, 2002

PO: verbal

SOIL BASELINE INFORMATION

Sample Name	pH*	Soluble Salts* dS/m or mmho/cm	Sodium Absorption Ratio* (SAR)	Organic Matter %*	Sand %*	Silt %*	Clay %*	Texture Class*
North Pile	8.6	0.3	3.1	1.7	74	15	11	Sandy Loam
South Pile	7.9	1.4	4.0	0.5	70	17	13	Sandy Loam
Mill Site Pile	8.5	0.2	1.8	0.4	78	13	9	Sandy Loam
Mill Site Area	8.1	0.2	0.9	1.6	62	25	13	Sandy Loam
S of Mill Site	8.1	0.2	0.8	1.2	62	25	13	Sandy Loam
Drainage Area	8.6	0.3	4.5	1.3	42	39	19	Loam

SOIL BASELINE INFORMATION (cont)

Sample Name	% Coarse Fragments* (Rocks) >2mm	≥1.5" (3.8 cm) in diameter*
North Pile	17.6	Present
South Pile	19.7	Present
Mill Site Pile	18.1	Present
Mill Site Area	14.9	Present
S of Mill Site	13.3	Present
Drainage Area	1.4	Present

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Baseline Interpretation:

Soils North Pile, South Pile, Mill Site Pile, Mill Site Area, and South of Mill Site are Normal Soils** with a coarse fraction present (>5.0%). The Drainage Area soil is a Normal Soil lacking a distinct coarse fraction (≤ 5.0%).

Normal Soils are characterized as having a pH of about 8.5 or less, soluble salt level of 4.0 or less and a SAR of 13 or less. Normal Soils are considered suitable for vegetation establishment.

The extent of the topsoil or suitable plant growth material from the six areas sampled will be provided by WUCC. U.S. Soil Conservation Service soil types will be provided by WUCC.

* *Topsoil Quality Guidelines for Landscaping*, June 2002, AG/SO-02, Rich Koenig, Utah State University Cooperative Extension Soil Specialist, and **Von Isaman, QA Consulting and Testing, LLC.**
** *The Nature and Properties of Soils*, 12th Edition, Brady and Weil, 1999.

Sampling locations and depths.

Sampling areas were designated on a topographic map by Mr. Dotson.

For North Pile, South Pile and Mill Site Pile, a trench was excavated from the top to the bottom of the pile. The trench depth was six inches (15 cm) and the width of the trench was that of a standard size round nose shovel. Soil was collected along the bottom of the trench and the entire length of the trench. The sampling depth was about one inch (2.5 cm). Any rocks encountered during the actual sampling were collected and counted in the coarse fragment determination. For each of these three areas, about 7.5 gallons (28 liters) of sample was collected and placed in clean buckets.

North Pile. Three trenches as described above were excavated on the west, north and east sides of the pile. Respective trench lengths were: 20 feet (6 meters), 19 feet (5.7 meters) and 15 feet (4.5 meters). These three sampling locations were composited into one sample for analyses.

South Pile. One trench as described above was excavated on the south side of the pile 45 feet (13.5 meters) long. The northeast corner of the pile, sometime in the past, had a portion removed. The portion removed was about 90 feet (27 meters) by 35 feet (10.5 meters).

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Sampling locations and depths (cont).

South Pile (cont). This removal resulted in a vertical face about 70 inches (1.8 meters) high. This face was back excavated 6 inches (15 cm) and a sample was collected. These two sampling locations were composited into one sample for analyses. Note that the South Pile consists of a West and East pile. The East pile was sampled and the results are designated as South Pile, as it is several meters to the south of the North Pile. The West pile was not sampled as it was determined that it was too rocky to afford any appreciable rooting/plant growth media.

Mill Site Pile. Two trenches as described above were excavated on the west lower tier of the pile and the west upper tier of the pile. Respective trench lengths were: 21 feet (6.3 meters) and 65 feet (19.5 meters). These two sampling locations were composited into one sample for analyses.

Mill Site Area, South of Mill Site and Drainage Area. A hole was dug using the round nose shovel approximately 8 inches (20.3 cm) deep. With a common garden type hand trawl, an approximate one inch (2.5 cm) slice was excavated into the face of the hole to a depth of 6 inches (15 cm). The soil was allowed to fall on the awaiting shovel blade. Any rocks encountered during the sampling were collected and counted in the coarse fragment determination. For each of these three areas, about 2.5 gallons (9.5 liters), 5 gallons (18.9 liters), and 2 gallons (7.5 liters), respectively, of soil was collected and placed in clean buckets. For the respective areas, 18, 36, and 15 subsamples were collected.

Comment:

On December 18, 2002, Von Isaman of QA Consulting and Testing, LLC., met with Mark Dotson and Earl Harrison, both of Western Utah Copper Company. In Mr. Dotson's office, he indicated to Mr. Harrison the areas to be soil sampled on a topographic map. Mr. Harrison and Mr. Isaman proceeded to the site and collected samples as described in this report. Mr. Isaman transported the soil samples to his laboratory in Salem, Utah where he conducted the above reported baseline analyses.

In order to obtain a representative soil sample from the topsoil piles, a trench technique was used. The trench technique is based upon the premise that the pile soil was deposited in layers using scrapers, dump trucks and bulldozer, or other similar methods. The entire length of the

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Comment (cont):

trench that traverses the side of the pile from top to bottom is sampled. This is graphically illustrated in the South Pile where the northeast section of the pile was previously removed leaving a vertical profile. The vertical profile revealed a distinct soil layer. The north side trench revealed a distinct soil layer as illustrated in the image of Earl Harrison indicating the layer presence. This trench technique for soil collection is validated by the vertical profile. By sampling more than one location (trench) on the pile, variation in soil deposition is minimized and subsample representation is optimized. A similar scenario is also afforded on the Mill Site pile.

Six inches (15 cm) of soil depth was collected from the Mill Site Area, South of Mill Site and Drainage Area in response to WUCC's statement on Page 5, Second Review, M/001/059, December 6, 2002 that states *"the operator says they intend to salvage the first six inches of material...".*

In the six areas sampled and tested, no sodic horizons or cemented hardpans were observed. Other materials, such as some bedrock, were not observed in the six areas sampled.

Visual observation of the vegetation growing on the three topsoil piles indicates there does not appear to be any significant adverse soil conditions that prohibit vegetation establishment.

The Mill Site area and South of Mill Site area (south of access road) appears to have a stable sagebrush plant community.

The Drainage Area (adjacent to South of Mill Site area and bordered by two drainages/washes) has received significant disturbance recently. Except for some pockets of sagebrush, the area is void of vegetation.

Digital images and photographs are available upon request.

WesternUtahCopperRpt.D27

wucc

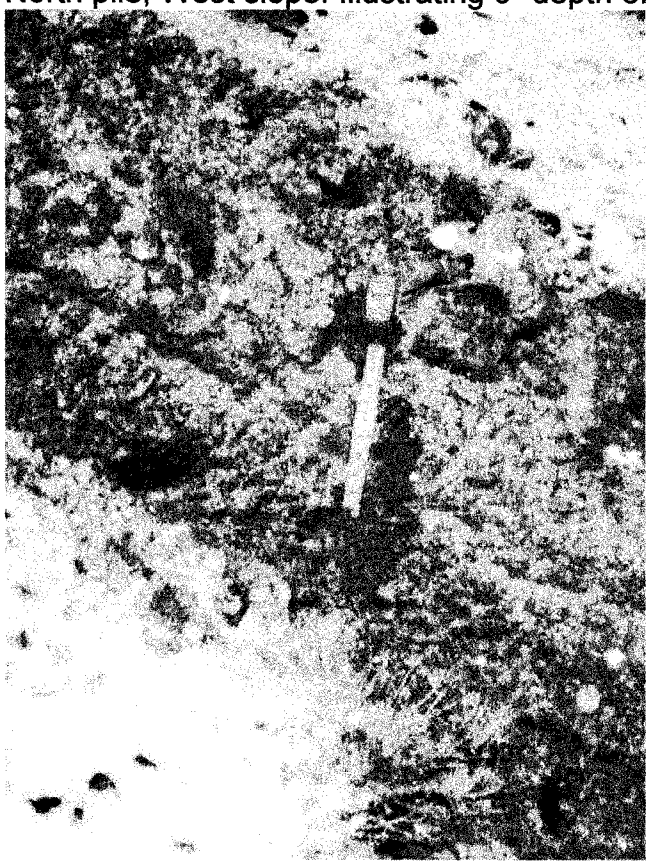
From: <ROYVON@aol.com>
To: <wucc@scinternet.net>
Sent: Friday, December 20, 2002 4:08 PM
Subject: soil collection images

Earl,

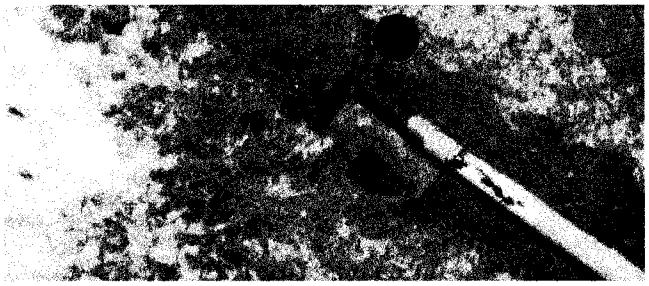
Please find below images of our 18 December 2002 soil collections at the WUCC site.

Von

North pile, West slope. Illustrating 6" depth of profile.

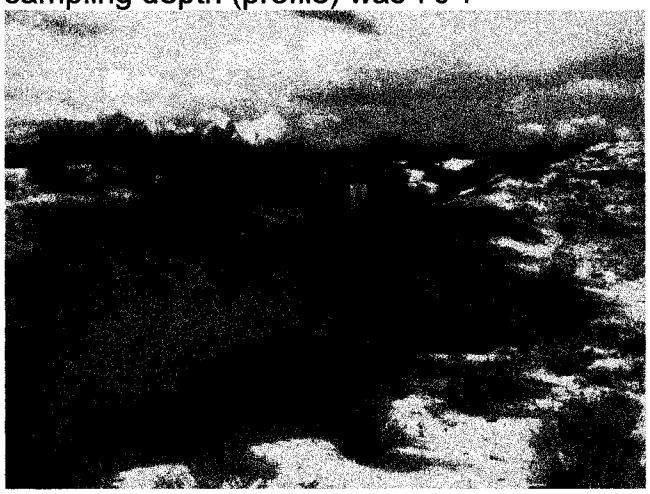


North pile, West slope. Illustrating sampling of profile.

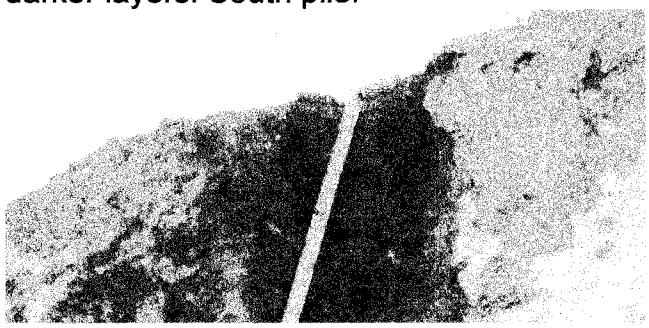


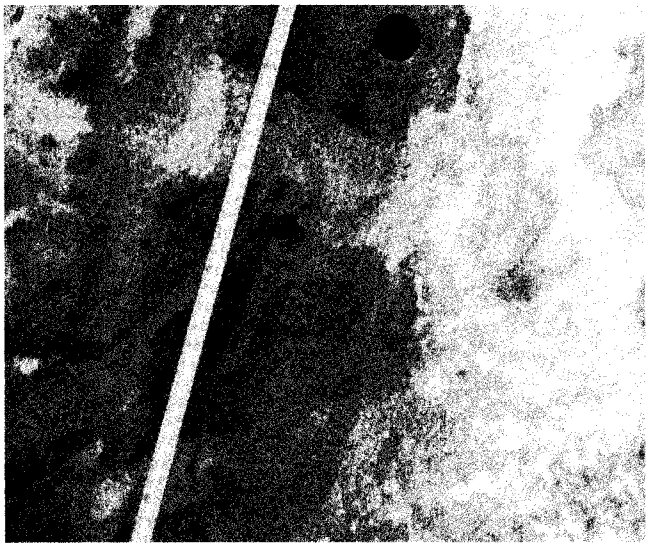
North pile, North slope. Illustrating trench length, note shorter profile above longer profile below.

South pile, North slope. A section of this pile had been removed. The sampling location represents the pile 35' in from North side and 90' in from the East side. The vertical sampling depth (profile) was 70".

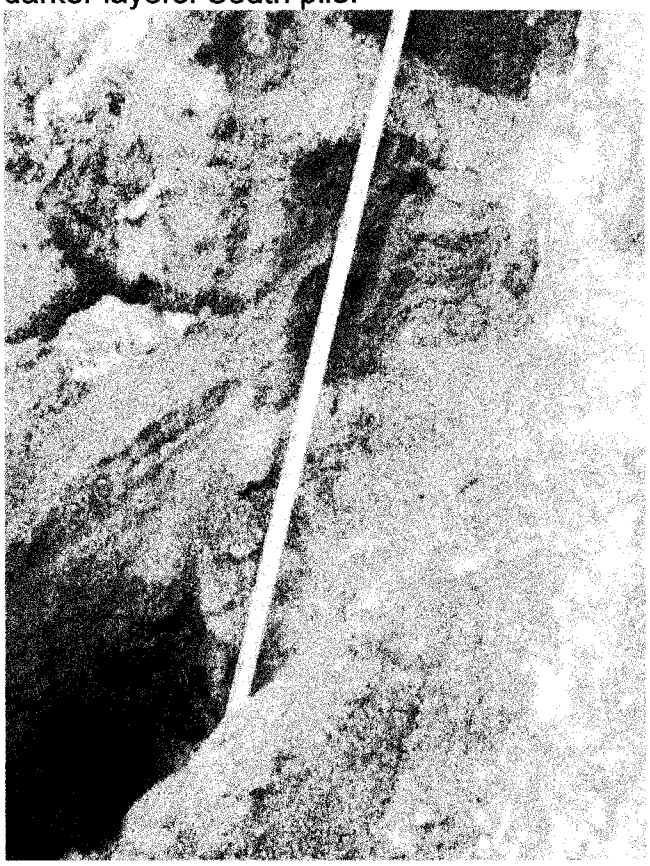


Upper portion of the 70" profile. Illustrating the distinct light layer of soil between the two darker layers. South pile.

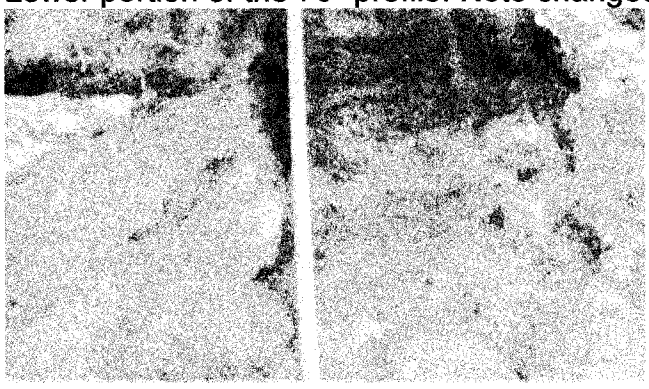


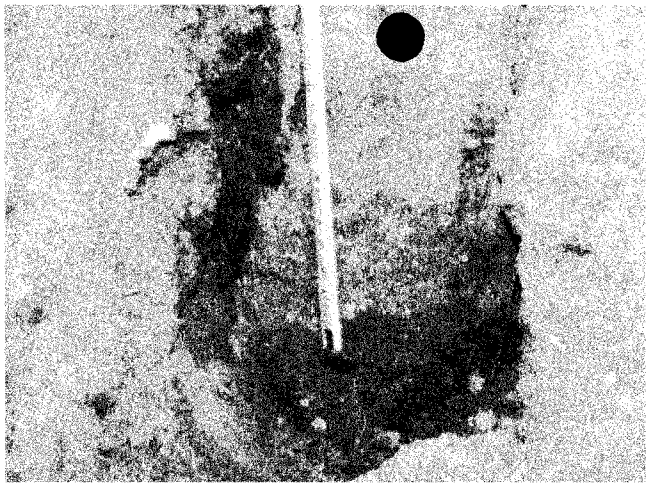


Mid portion of the 70" profile. Illustrating the distinct light layer of soil between the two darker layers. South pile.



Lower portion of the 70" profile. Note changes in soil color along the profile. South pile.

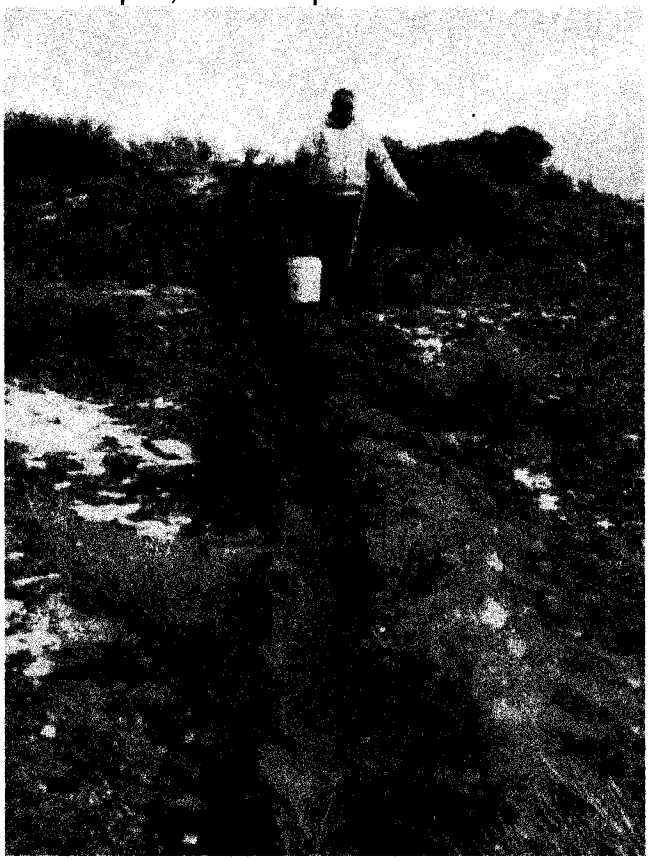




South pile, South slope. Profile is 45' long.

South pile, South slope. Earl Harrison pointing out light color soil horizon in the 45' profile.

Mill site pile, West slope of second level. Profile is 65'.



END