UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analyses and descriptions of geochemical samples, central part of the Southern Nantahala Wilderness, Rabun and Towns Counties, Georgia and Clay and Macon Counties, North Carolina

by

Adrian, B.M.[1], J.D. Peper[2], R.J. Fairfield[1],
L.S. Laudon, and C.A. Edwards[2]

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[1] Denver, Colorado
[2] Reston, Virginia

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STUDIES RELATED TO WILDERNESS

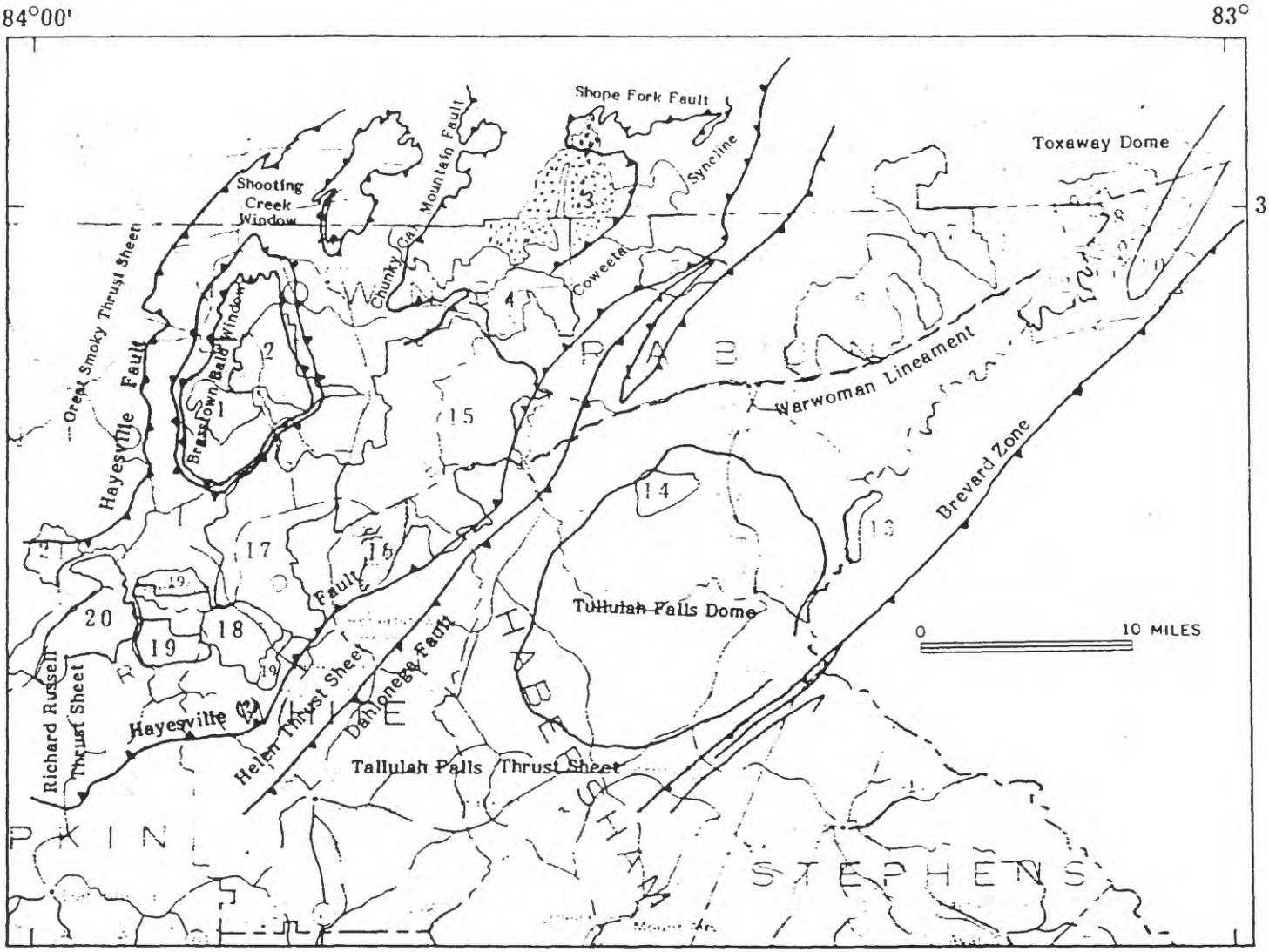
The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey (USGS) and the U.S. Bureau of Mines to survey certain areas on Federal lands in order to determine the mineral values, if any, that may be present. Results must be made available to the public and be submitted to the President and the Congress. This report presents the analytical results of a geochemical survey of the central part of the Southern Nantahala Wilderness in the Chattahoochee National Forest, Rabun and Towns Counties, Ga., and Towns and Macon Counties, N.C. The area was classified as wilderness during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January, 1979.

Abstract

Semiquantitative spectrographic analyses for 31 elements on 27 stream-sediment, 27 panned-concentrate, 10 soil, and 192 rock samples from the Southern Nantahala Wilderness, are reported here in detail. Atomic-absorption analyses for gold in selected samples are also reported. Brief descriptions are given of rock samples analyzed, which include metamorphic and igneous rocks. Sample locations are given in Universal Transverse Mercator (UTM) coordinates.

INTRODUCTION

The analyses presented in this report (Table 1) are of 27 stream-sediment 27 panned-concentrates, 10 soil, and 192 rock samples from the Southern Nantahala Wilderness (Fig. 1). These were collected by J.D. Peper and J.P. D'Agostino, Ricardo Lopez, J.C. Jackson, and M.R. Brown.



EXPLANATION

3. Southern Nantahala Wilderness
8. Ellicott Rock Wilderness

Roadless Areas

1. Wolf Pen 8-149
2. Brasstown 8-146
4. Buzzard Knob 8-223
5. Southern Nantahala B8-025
6. Rabun Bald 8-147
7. Overflow 8-026
9. Ellicott Rock Extension A8-031
10. Persimmon Mountain L8-116
11. Ellicott Rock Expansion 8-112
12. Rand Mountain 8-148
13. Long Creek 8-113
14. Worley Ridge 8-224
15. Tray Mountain 8-030
16. Anna Ruby 8-225
17. Chattahoochee River 8-029
18. Raven Cliff A8-028
19. Raven Cliff B8-028
20. Blood Mountain 8-027
21. Board Camp 8-145

Figure 1.-- Index map showing locations of wilderness and roadless areas and major structural features in northeastern Georgia and adjacent North and South Carolina. The area covered in this report is stippled. Number after roadless name is Forest Service identification number.

These represent several handfuls, randomly collected, of the finest sediment available at the sample site in the stream. A heavy mineral sample from coarser sediment was taken at 27 sites by panning one or more panfuls of gravel using a 14 in. standard gold pan. After air drying at room temperature, the remaining light minerals, mostly quartz and feldspar, were removed from the panned concentrate using bromoform (specific gravity 2.8). Magnetite was removed using a hand-held magnet and discarded. The remaining concentrate was analyzed without further preparation. Rock samples analyzed are described briefly in a separate section of this report. All are chip samples taken across bedding or layering over a measured thickness of representative material from outcrops or road cuts. The samples are representative of the major rock types exposed in the area. Some of the rock is partly weathered, but generally the freshest material available was sampled. Map showing sample localities, and discussion of analytical results is given by Peper and others (in press).

ANALYTICAL TECHNIQUES

Each sample was analyzed semiquantitatively for 31 elements by means of a six-step, D.C. (direct-current) arc, optical-emission spectrographic method (Grimes and Marranzino, 1968) by R. T. Hopkins and M. S. Erickson in the USGS laboratories, Denver, Colo. In addition, most of the samples were analyzed for zinc by an atomic-absorption technique (Ward and others, 1969, p. 20) by M. A. Pokorny, USGS laboratories, Denver, Colo. The panned-concentrate samples and 5 rock samples were analyzed for gold by atomic absorption methods by T. A. Roemer and T. Hayek (Thompson and others, 1968). The semiquantitative spectrographic values are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, 0.15 or multiples of ten of these numbers) and are approximate midpoints of geometric brackets whose boundaries are 1.2, 0.83, 0.56, 0.38, 0.26, 0.18, 0.12, etc. The expected precision is within one adjoining reporting interval on each side of the reported value 83 percent of the time and within two adjoining intervals 96 percent of the time (Motooka and Grimes, 1976).

The visual lower limits of determination for the 31 elements that were determined spectrographically are as follows:

For those given in percent:

Calcium	0.05	Magnesium	0.02
Iron	0.05	Titanium	0.002

For those given in ppm:

Antimony	100	Molybdenum	5
Arsenic	200	Nickel	5
Barium	20	Niobium	20
Beryllium	1	Scandium	5
Bismuth	10	Silver	0.5
Boron	10	Strontium	100
Cadmium	20	Thorium	100
Chromium	10	Tin	10
Cobalt	5	Tungsten	50
Copper	5	Vanadium	10
Gold	10	Yttrium	10
Lanthanum	20	Zinc	200
Lead	10	Zirconium	10
Manganese	10		

Rock sample descriptions

GA04-	
403R	2 m chip sample, dark gray, medium-grained, strongly foliated hornblende-plagioclase amphibolite. Sample from 2.5 m-thick amphibolite bed in biotite gneiss.
404R	5 m chip sample, massive white to translucent quartz vein with .5-1.5 cm books of green muscovite.
405R	2 m chip sample, massive white quartz vein. Quartz vein 3 m thick, trends 10's of meters.
406R	2 m chip sample, medium-gray, medium-grained, strongly foliated, biotite-muscovite gneiss with 1-3 cm wide pegmatitic stringers and pods.
407R	2 m chip sample, gray to tan, rarely rusty, quartz-biotite-muscovite-garnet schist. Schist weakly layered to massive, parted .25 cm.
408R	2 m chip sample, very dark gray, fine-grained quartz-biotite-garnet granofels with hackly fracture.
409R	2 m chip sample, medium-grained, hornblende-plagioclase amphibolite, layered (richer and poorer) in hornblende content on scale of 6-10 cm.
410R	2 m chip sample, gray to brown biotite-garnet-muscovite schist
411R	2 m chip sample, medium gray, medium- to coarse-grained, thickly parted, feldspar-quartz-biotite-hornblende-garnet gneiss.
412R	2 m chip sample, medium gray, medium-grained, migmatitic quartz-plagioclase-biotite-garnet gneiss.
413R	2 m chip sample, medium gray, medium-grained, migmatitic quartz-plagioclase-biotite gneiss.
414R	2 m chip sample, medium gray, medium-grained, migmatitic, quartz-plagioclase-biotite gneiss with 0.5 cm thick quartz stringers
415R	2 m chip sample, light tan to gray, schistose, quartz-plagioclase biotite gneiss with 0.5 cm-thick quartz-muscovite seams parallel to foliation and layering.
416R	2 m chip sample, rusty yellow weathering, quartz-feldspar-muscovite-biotite schist.
417R	2 m chip sample, light gray fine- to medium-grained quartz-plagioclase-biotite gneiss; evenly parted 0.25 - 0.9 cm; gneiss thinly layered.
418R	2 m chip sample, rusty-red-brown weathering, biotite-muscovite gneiss.
419R	2 m chip sample, light gray, schistose, quartz-plagioclase-biotite-muscovite gneiss.
420R	2 m chip sample, medium gray, thinly parted, quartz-plagioclase-biotite gneiss.
421R	2 m chip sample, from rubbly crop of white to translucent quartz vein.
422R	2 m chip sample, brownish-gray weathering, quartz-feldspar-biotite-garnet-muscovite schist.
423R	2 m chip sample, foliated, white to light-gray biotite aplite. Biotite content 1-3 percent.
424R	2 m chip sample, medium- to dark-gray quartz-plagioclase-biotite gneiss with 1 cm- to 3 cm-thick pegmatite stringers and pods.
425R	2 m chip sample, rusty-brown weathering, biotite-rich, quartz-feldspar-biotite-garnet schist.

Rock sample descriptions

GA04-	
426R	2 m chip sample, rusty-brownish-yellow weathering biotite-muscovite schist.
427R	2 m chip sample, rusty weathering, migmatitic, biotite-muscovite schist.
428R	1 m chip sample, white quartz from 1 m-thick quartz vein.
430R	2 m chip sample, medium-gray, quartz-plagioclase-biotite gneiss; evenly parted 1 cm - 3 cm.
433R	2 m chip sample, light-gray to rusty weathering, quartz-plagioclase-biotite gneiss; thinly and evenly parted.
435R	2 m chip sample, light-gray medium-grained plagioclase-quartz-hornblende-biotite gneiss; parted evenly on 4 cm spacing.
436R	2 m chip sample, rusty-brown to gray plagioclase-biotite-hornblende gneiss. Sample from old 3 m x 6 m quarry in knoll.
437R	2 m chip sample, light gray, fine-grained, strongly foliated biotite-hornblende-garnet gneiss.
438R	2 m chip sample, thin, fissile, layers of hornblende schist interlayered with greater amounts of fine-grained quartz-plagioclase-biotite-hornblende gneiss.
439R	2 m chip sample, medium-grained plagioclase-hornblende-quartz gneiss.
440R	1 m chip sample, white to translucent vein quartz from 2 m-wide vein trending east.
443R	2 m chip sample, light gray, irregularly parted, feldspar-quartz-biotite-garnet flazer gneiss with 1-3 cm ovoid feldspar-quartz flazer separated by streaked-out biotite clusters.
444R	2 m chip sample, light gray, granular, fine- to medium-grained feldspar-quartz-biotite gneiss.
447R	2 m chip sample, grayish-brown coarse-grained, biotite-muscovite schist from south of Shook Branch.
711R	2 m chip sample, gray biotite gneiss; sample of gneiss interlayered with amphibolite.
712R	2 m chip sample, gray medium-grained feldspar-quartz-biotite gneiss, exposure weathered.
713R	2 m chip sample, dark gray, thickly-layered medium-grained hornblende-garnet-plagioclase amphibolite.
714R	2 m chip sample, feldspar-quartz-muscovite pegmatite; from prospect pile.
715R	2 m chip sample, thickly layered, foliated, hornblende-plagioclase amphibolite; sample from amphibolite interlayered with biotite gneiss.
716R	2 m chip sample, coarse-grained, light gray, feldspar-quartz-biotite gneiss.
744R	2 m chip sample, coarse-grained, light olive ultramafic rock, altered largely to serpentinite.
745R	2 m chip sample, gray, medium-grained, plagioclase-quartz-biotite gneiss.
746R	2 m chip sample, medium gray, medium-grained, plagioclase-quartz-biotite gneiss.
747R	2 m chip sample, medium gray, medium-grained, plagioclase-quartz-biotite gneiss; gneiss granular, trace red garnet.
748R	2 m chip sample, medium gray, medium-grained, feldspar-quartz-biotite gneiss; gneiss migmatitic; with trace sphene, sulfide.

Rock sample descriptions

GA04-	
749R	2 m chip sample, very light gray, fine-grained, foliated, biotite-magnetite aplite; CI less than one.
750R	2 m chip sample, medium gray, medium-grained feldspar-quartz-biotite-garnet-sillimanite schist; garnets 4-6 mm, broken, anhedral, dark red.
751R	2 m chip sample, medium gray, medium-grained, feldspar-quartz-biotite-sillimanite-garnet kinzigite; 4-6 mm garnets, translucent to deep red, sillimanite prismatic.
752R	2 m chip sample, medium gray, medium- to fine-grained, feldspar-quartz-biotite augen gneiss; feldspar augen 4-6 mm.
753R	2 m chip sample, light gray, migmatitic, feldspar-quartz-biotite-muscovite gneiss.
754R	2 m chip sample, light gray, medium-grained, thickly-layered, weakly foliated, feldspar-quartz-biotite gneiss.
755R	2 m chip sample, thinly interlayered, medium-grained plagioclase-quartz-biotite gneiss and hornblende-plagioclase amphibolite; exposure strongly weathered.
757R	2 m chip sample, fine-grained, strongly foliated, hornblende-plagioclase-amphibolite.
758R	2 m chip sample, thickly layered, medium-to coarse-grained, weakly foliated, plagioclase-hornblende amphibolite.
759R	2 m chip sample, light gray, medium-grained, plagioclase-quartz-biotite gneiss.
761R	2 m chip sample, medium gray to red-rusty-brown weathering, feldspar-quartz-biotite-garnet-sillimanite schist; garnets anhedral, red, 4-6 mm clusters; sillimanite prismatic, with quartz in 8-10 mm knots and flattened leaves; trace sulfide.
762R	2 m chip sample, dark gray, fine-grained, foliated, hornblende-plagioclase amphibolite.
763R	2 m chip sample, feldspar-quartz-muscovite pegmatite.
764R	2 m chip sample, very light gray, fine-grained, slabby, feldspar-quartz-biotite-muscovite gneiss.
766R	2 m chip sample, medium gray, medium-grained, migmatitic, plagioclase-quartz-biotite-garnet gneiss; garnets 1 mm euhedral.
450R	2 m chip sample, 3 m wide foliated hb-rich amphibolite layer in biotite gneiss.
476R	2 m chip sample, strongly foliated fissile, feldspar-quartz-biotite-garnet schist.
501R	2 m chip sample, light gray to white biotite mass.
504R	2 m chip sample, fissile to platy, medium-grained feldspar-quartz-biotite-garnet schistose gneiss.
505R	2 m chip sample, light gray, feldspar-quartz-biotite-muscovite gneiss; finely laminated, fine-grained.
506R	2 m chip sample, light grayish green, pinstripe, biotite-muscovite-garnet gneiss.
507R	2 m chip sample, light grayish green, pinstripe, biotite-muscovite gneiss.
508R	2 m chip sample, light gray, fine-grained, blocky, feldspar-quartz-biotite gneiss.
509R	2 m chip sample, light to medium gray, fine-grained schistose biotite gneiss.

Rock sample descriptions

GA04-	
510R	2 m chip sample, rubbly light gray biotite flazer gneiss with feldspar-biotite flazer in milled dark gray aphanitic matrix.
511R	2 m chip sample, light-grayish-green, pinstripe, biotite gneiss.
516R	2 m chip sample, light gray, medium-grained, feldspar-quartz-biotite gneiss; parted 0.6 m.
517R	2 m chip sample, light gray, laminated biotite-muscovite gneiss interlayered with biotite-muscovite schist.
518R	2 m chip sample, dark brown to buff weathering, blocky, muscovite-biotite-garnet schist.
519R	2 m chip sample, light gray, medium-grained, feldspar-quartz-biotite-garnet gneiss; schistose; parted 3-10 cm.
520R	2m chip sample, rusty red-brown to buff weathering, medium- to fine-grained, laminated, felsic, feldspar-quartz-biotite gneiss.
521R	2 m chip sample, medium gray, medium-grained feldspar-quartz-biotite gneiss; schistose and blocky, from outcrop marked by crenulation folds with slaty axial-planar clevage.
522R	2 m chip sample, dark gray, medium-grained, slabby, hornblende-plagioclase amphibolite.
523R	2 m chip sample, strongly weathered felsic biotite gneiss.
524R	2 m chip sample, light gray fine-grained biotite gneiss containing a few 3-6 cm thick layers of fine-grained, dark gray, feldspathic quartzite.
525R	2 m chip sample, light gray, laminated, feldspathic biotitic gneiss; fine-grained, blocky to slabby.
526R	2 m chip sample, medium gray, laminated feldspathic biotite-muscovite schist; strongly crenulated.
KH04-	
701R	2 m chip sample, light gray, medium-grained, plagioclase-quartz-biotite gneiss; thin and irregularly layered and parted.
702R	2 m chip sample, dark gray, fine-grained, hornblende-plagioclase amphibolite; thinly layered, strongly foliated.
703R	2 m chip sample, hornblende-plagioclase amphibolite.
704R	2 m chip sample, white, thinly layered, micaceous quartzite and quartz-feldspar gneiss.
705R	2 m chip sample, fine-grained, foliated, feldspar-quartz-sillimanite-garnet-biotite gneiss; sillimanite prismatic; garnet dark-red in 2-4 cm, fractured, anhedral clots.
707R	2 m chip sample, quartz-feldspar-biotite gneiss
708R	2 m chip sample, feldspar-quartz-biotite-garnet-sillimanite gneiss; garnet anhedral, dark red, flattened, quartz in leaves.
709R	2 m chip sample, medium-grained, "salt and pepper" textured, plagioclase-hornblende amphibolite
710R	2 m chip sample, coarse-grained, thickly parted, irregular-textured plagioclase-hornblende amphibolite.
402R	2 m chip sample, very light gray, migmatitic, plagioclase-quartz-biotite gneiss; with quartz knots and stringers.
404R	2 m chip sample, sulfide and feldspathic biotite-garnet-sillimanite schist; strongly crenulated.
405R	2 m chip sample, gray, feldspathic, biotite-garnet schist.
407R	2 m chip sample, gray- to rusty-orange-brown weathering, fine-grained; quartz-feldspar-biotite gneiss.

Rock sample descriptions

KH04-	
408R	2 m chip sample, medium gray, poorly layered, fine-grained, quartz-plagioclase-biotite-garnet gneiss.
409A	2 m chip sample, dark gray, thinly and irregularly layered, hornblende-plagioclase-garnet amphibolite.
410R	2 m chip sample, pencil-lead-gray, graphitic, muscovite-biotite-garnet schist; with 4 to 6 cm quartz knots.
411R	2 m chip sample, rusty-tannish-orange weathering, plagioclase-quartz-biotite gneiss.
412R	2 m chip sample, brown to rusty, crumbly, feldspar-quartz-biotite gneiss.
413R	2 m chip sample, dark gray, medium-grained, feldspar-hornblende-biotite-quartz gneiss; parted 4-16 cm; regularly parted.
420R	2 m chip sample, medium-grained hornblende-garnet-plagioclase amphibolite in layers 1 to 10 cm thick, interleaved with more abundant medium gray, plagioclase-quartz-hornblende-biotite-garnet gneiss.
429R	2 m chip sample, dark gray to rusty weathering, hornblende-biotite-feldspar-quartz gneiss.
430R	2 m chip sample, thickly-layered to blocky and knobby weathering, hornblende gneiss.
433R	2 m chip sample, coarse-grained, knobby weathering, amphibolite.
450R	2 m chip sample, gray, fine-grained, granular, biotite-muscovite gneiss.
451R	2 m chip sample, dark gray to reddish-orange weathering, feldspathic, biotite-garnet schist; garnets 6-10 mm, anhedral, dark red.
452R	2 m chip sample, rusty-orange weathering, feldspathic biotite schist; laminated.
453R	2 m chip sample, dark gray, laminated, biotite-garnet gneiss with 1-2 cm, broken garnets; crenulated.
454R	2 m chip sample; tan, feldspathic biotite-muscovite schist.
455R	2 m chip sample, tan to gray, pinstriped, feldspathic biotite gneiss.
456R	2 m chip sample, very light gray, blocky, medium-grained, feldspar-quartz-biotite gneiss.
457R	2 m chip sample, laminated, light gray, quartz-feldspar-muscovite-biotite gneiss.
458R	2 m chip sample, thin-layered, hornblende-plagioclase amphibolite.
459R	2 m chip sample, thin-layered, light gray, quartz-plagioclase-biotite gneiss.
460R	2 m chip sample, light gray, schistose, feldspathic, biotite-garnet gneiss.
461R	2 m chip sample, medium gray, feldspathic, biotite-garnet schist
462R	2 m chip sample, hornblende-plagioclase amphibolite interlayered with 10 cm seams of feldspathic muscovite-garnet schist.
463R	2 m chip sample, light gray, blocky, feldspar-quartz-biotite gneiss.
464R	2 m chip sample, light gray, blocky, feldspar-quartz-biotite gneiss.
465R	2 m chip sample, silvery gray, feldspar-quartz-muscovite-biotite-garnet schist with 4 mm, dark red euhedral garnets.
466R	2 m chip sample, silvery gray, blocky, feldspar-quartz-muscovite-biotite-garnet schist with 1 cm, dark red, euhedral garnet.

Rock sample descriptions

KH04-	
467R	2 m chip sample, pinstriped, fine-grained, feldspathic, biotite-garnet gneiss with a few 4 cm layers of quartz-epidote-ankerite? rock.
468R	2 m chip sample, medium-grained, feldspar-quartz-biotite-garnet gneiss; gneiss schistose, fissile to parted 3-4 cm.
469R	2 m chip sample, schistose, feldspar-quartz-biotite gneiss; contains trace sulfide in part.
470R	2 m chip sample, light gray, granular, slabby, feldspar-quartz-biotite gneiss.
472R	2 m chip sample, hornblende-plagioclase amphibolite, massive to thick-layered.
473R	2 m chip sample, blocky, hornblende-plagioclase amphibolite; compositionally massive; parted 6 cm - 0.3 m.
474R	2 m chip sample, medium gray, feldspar-quartz-garnet-biotite gneiss with 1-2 cm broken garnets.
475R	2 m chip sample, rubbly outcrop of gray, medium-grained, feldspar-quartz-biotite gneiss.
476R	2 m chip sample, fissile schistose biotite gneiss with thin veins and stringers of pegmatite.
480R	2 m chip sample, dark gray, fine-grained, schistose, quartz-plagioclase-garnet amphibolite.
501R	2 m chip sample, light gray, weathering rusty to greenish-gray, fine-grained, slabby quartz-plagioclase-biotite gneiss.
502R	2 m chip sample, light gray to greenish-gray, thinly-layered, slabby, quartz-plagioclase-biotite-garnet gneiss.
503R	2 m chip sample, dark gray, medium-grained, thickly-layered, hornblende-plagioclase amphibolite.
504R	2 m chip sample, dark gray, blocky, medium- to coarse-grained, hornblende-plagioclase amphibolite from rubbly talus exposure.
505R	2 m chip sample, gray to rusty reddish-tan weathering, fissile to thinly parted, schistose, quartz-feldspar-biotite-muscovite gneiss.
506R	2 m chip sample, light gray, medium-grained, quartz-plagioclase-biotite gneiss.
507R	2 m chip sample, very light gray, coarse-grained, gneissic biotite-muscovite; feldspar phenocrysts milled and brecciated.
508R	2 m chip sample, light grayish-green, fine-grained, schistose, feldspar-quartz-biotite-muscovite-garnet gneiss; thinly laminated
509R	2 m chip sample, light gray to rusty reddish-tan, medium-grained, schistose, feldspar-quartz-biotite-muscovite-garnet gneiss.
510R	2 m chip sample, light gray, blocky to platy, medium-grained, feldspar-quartz-biotite-muscovite-garnet gneiss with 2-4 mm dark red, anhedral garnet.
511R	2 m chip sample, slabby, strongly foliated, hornblende-garnet-plagioclase amphibolite.
512R	2 m chip sample, light grayish-green to rusty, fine-grained, feldspar-quartz-biotite schist.
514R	2 m chip sample, schistose, rusty muscovite gneiss interlayered with 3 to 6 cm thick lenses of quartz-epidote-biotite-garnet calc-silicate gneiss.

Rock sample descriptions

KH04-	
515R	2 m chip sample, light gray, fine-grained, feldspar-quartz-biotite-garnet gneiss.
516R	2 m chip sample, dark grayish-green, fine-grained, biotite-epidote quartzite.
517R	2 m chip sample, light gray biotite gneiss with 1 to 3 cm thick stringers and pods of white to translucent vein quartz.
518R	2 m chip sample, dark gray to black, coarse-grained, strongly foliated, compositionally massive, thickly parted garnet-hornblende amphibolite.
519R	2 m chip sample, light gray, feldspar-quartz-biotite-garnet gneiss; parted 2-30 cm.
520R	2 m chip sample, light gray, felsic, medium-grained, weakly foliated, feldspar-quartz-biotite-garnet gneiss.
521R	2 m chip sample, very light gray to salt and pepper spotted feldspar-quartz-biotite gneiss; biotite in 6-8 mm knots; gneiss parted 2-6 cm.
522R	2 m chip sample, schistose, light gray feldspar-quartz-biotite gneiss.
523R	2 m chip sample; hornblende-plagioclase amphibolite from 6-10 cm to .3 m thick layers in upper part of biotite gneiss of sample GZ04522R.
524R	2 m chip sample, light-colored, weakly foliated, blocky, feldspar-quartz-biotite gneiss.
525R	2 m chip sample, light gray feldspar quartz-biotite gneiss with 2 cm layers of granular epidote-plagioclase-biotite gneiss and 2 cm layers of schistose biotite-garnet gneiss.
526R	2 m chip sample, dark gray, feldspar-quartz-biotite-garnet gneiss.
527R	2 m chip sample, fine-grained, gray, slabby, feldspar-quartz-biotite gneiss.
528R	2 m chip sample, medium gray to rusty brown, crumpled, schistose, mica-garnet gneiss.
529R	2 m chip sample, light to medium gray, to rusty, blocky to slabby, mica-garnet gneiss; schistose in part.
608R	2 m chip sample, light gray, medium-grained, feldspathic, biotite-garnet schist.
610R	2 m chip sample, feldspar-quartz-muscovite pegmatite.
611R	2 m chip sample, gray, feldspar-quartz-biotite-garnet gneiss; orange garnets.
612R	2 m chip sample, gray, fine-grained, quartz-plagioclase-biotite-garnet schist, tiny (less than 1 mm) garnets.
613R	2 m chip sample, migmatitic, thinly layered, biotite schist; coarse-grained, feldspar-quartz in veins, and in stringers parallel to foliation and layering.
615R	2 m chip sample, gray, medium- to coarse-grained, migmatitic, biotite schist.
616R	2 m chip sample, gray, medium- to coarse-grained, migmatitic, biotite schist.
617R	2 m chip sample, thinly interlayered, slabby, gray, biotite granofels and biotite schist.

Rock sample descriptions

KH04-618R	2 m chip sample, light grayish-green, thinly layered to laminated, quartz-feldspar-biotite-garnet gneiss.
GA04-600R	2 m chip sample, light gray, feldspathic, feldspar-quartz-biotite gneiss.
601R	2 m chip sample, light gray, feldspar-quartz-biotite gneiss.
602R	2 m chip sample, thinly interlayered quartz-plagioclase-biotite gneiss and biotite schist.
603R	2 m chip sample, dark gray, thickly layered, well-foliated, hornblende-plagioclase amphibolite.
604R	2 m chip sample, dark gray, thickly layered, well-foliated, hornblende-plagioclase amphibolite.
KH04-701R	2 m chip sample, gray to red-brown weathering biotite gneiss with pegmatite stringers.
702R	2 m chip sample, gray biotite gneiss.
703R	2 m chip sample, granite pegmatite.
704R	2 m chip sample, schistose, and garnetiferous, biotite-muscovite gneiss.
705R	2 m chip sample, garnetiferous biotite gneiss.
706R	2 m chip sample, biotite gneiss.
707R	2 m chip sample, feldspathic biotite gneiss.
708R	2 m chip sample, garnetiferous biotite gneiss.
709R	2 m chip sample, hornblende-plagioclase amphibolite.
710R	2 m chip sample, hornblende-plagioclase amphibolite.
727R	2 m chip sample, migmatitic, gray, medium-grained, plagioclase-quartz-biotite-muscovite gneiss; trace garnet and sphene.
728R	2 m chip sample, light-gray, thinly-layered, quartz-rich, quartz-plagioclase-biotite gneiss with trace garnet, sphene, diopside, and carbonate.
729R	2 m chip sample, gray to red-brown weathering, feldspar-quartz-biotite-garnet-muscovite-sillimanite schist.
730R	2 m chip sample, gray, coarse-grained, feldspar-quartz-biotite-sillimanite-garnet schist.
731R	2 m chip sample, light-gray, medium-grained, plagioclase-quartz-biotite-garnet gneiss; salt-and-pepper-textured.
732R	2 m chip sample, light-gray, fine-grained, plagioclase-quartz-biotite-garnet gneiss.
733R	2 m chip sample, white, feldspar-quartz-garnet pegmatite; garnets less than 1 mm.
734R	2 m chip sample, light-gray, fine-grained, slabby, plagioclase-quartz-biotite-garnet gneiss.
735R	2 m chip sample, dark-gray, migmatitic, coarse-grained feldspar-quartz-biotite-garnet schist.
736R	2 m chip sample, medium-gray, coarse-grained, quartz-feldspar-biotite-garnet-kyanite-sillimanite schist; garnets 4 mm; prismatic sillimanite overgrowth on stubby gray kyanite.
737R	2 m chip sample, medium-gray, medium-grained, plagioclase-quartz-biotite-garnet gneiss; slabby.
738R	2 m chip sample, gray to red-brown weathering, coarse-grained, feldspar-quartz-biotite-muscovite-garnet schist.

Rock sample descriptions

KH04-	
739R	2 m chip sample, feldspathic and migmatitic, feldspar-quartz-biotite muscovite gneiss.
740R	2 m chip sample, slabby to blocky, plagioclase-hornblende amphibolite; trace sphene, garnet.
741R	2 m chip sample, medium-grained, plagioclase-hornblende amphibolite; trace sphene, ankerite, epidote, garnet.
742R	2 m chip sample, gray to red-brown weathering, coarse-grained, feldspar-quartz-biotite-garnet-sillimanite gneiss.
743R	2 m chip sample, blocky, coarse-grained, hornblende-plagioclase amphibolite; color index near 70; trace sphene, biotite, and carbonate

EXPLANATION OF TABLE 1

The X and Y coordinates are Universal Transverse Mercator (UTM) grid, zone 17. The X coordinate is the easting value, in meters; the Y is the northing, in meters.

Table 1 lists the results of analyses of all sample media. The letters following the sample numbers designate the type of sample: "C" designates panned concentrates, "D" designates soils, "R" designates rocks, and "S" designates stream sediments.

Iron, magnesium, calcium, and titanium, concentrations are reported in percent (pct); all others are in parts per million (ppm). Letters before chemical symbols indicate the method of analysis: s, six-step semiquantitative spectrographic method; AA, atomic absorption. Other symbols on the table are: <, not detected at threshold value; or detected but less than value shown; --, not determined; >, amount detected is above the upper limit of determination, which is the number shown.

Elements looked for spectrographically but not found, except as noted, are listed below. The lower limits of determination for these elements are in parentheses, the first number is for rock, soil and stream sediment; the second number is for panned-concentrate samples.

Ag (0.5), As (200; 500), Au (20; 20), Bi (10;20), Cd (20; 50), Sb (100; 200), and W (50; 100).

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TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
						STREAM SEDIMENT								
GA03431S	265610	3874290	2	0.5	0.5	0.5	500	10	300	1.5	15	50	15	70
GA03445S	265800	3873410	2	0.3	0.15	0.5	300	10	200	1	15	30	20	100
GA04321S	267160	3869880	3	0.2	0.05	>1	1000	30	300	1	15	100	15	30
GA04323S	266900	3872200	3	1.5	1.5	>1	1000	10	300	1.5	20	150	20	30
GA04325S	266740	3873860	5	1.5	1	>1	700	15	200	1	30	150	70	30
GA04327S	266640	3874680	5	1.5	1.5	>1	1000	<10	300	1.5	15	100	30	100
GA04329S	262160	3873460	5	1.5	0.5	>1	700	<10	300	1	10	100	50	100
GA04331S	262140	3873540	5	1	1	>1	500	10	300	1.5	15	100	20	50
KH04416S	267220	3879130	10	0.5	0.3	1	700	15	300	1	15	100	20	200
KH04418S	267280	3879120	5	0.5	0.5	0.7	700	10	500	1.5	15	70	20	150
KH04422S	266950	3878770	5	0.7	0.7	0.5	500	<10	300	1.5	15	70	15	100
KH04426S	267080	3878080	3	0.5	0.5	0.2	500	<10	200	1	15	50	20	100
KH04428S	266880	3878110	3	0.5	0.5	0.3	300	<10	300	1.5	15	70	20	50
KH04432S	266530	3877200	3	0.7	0.7	0.5	700	<10	300	1.5	15	70	20	30
KH04434S	271280	3878090	5	0.5	0.3	1	500	<10	300	1	15	70	20	50
KH04437S	271020	3880620	10	0.5	0.3	>1.	1000	<10	500	<1	15	100	20	200
KH04438S	270200	3882460	10	1.5	1.5	1	700	<10	300	1	20	100	20	50
GA04502S	266460	3874300	10	1	1	0.7	1500	10	1000	1.5	10	100	50	100
GA04512S	271100	3872550	10	0.3	0.15	>1.	1500	<10	700	<1	10	100	7	<20
GA04514S	271230	3872700	10	1	0.7	1	1000	<10	500	1	10	150	7	70
GA04607S	271330	3873650	10	1	1	>1.	1500	10	700	1	15	100	20	70
KH04619S	268020	3882350	5	1	1	0.7	1500	10	700	1	15	70	15	100
KH04621S	268360	3883190	10	1	1.5	1	2000	<10	700	1	10	70	10	70
GA04717S	265620	3875280	10	1	0.7	0.7	1500	10	500	1.5	20	100	30	100
GA04720S	263600	3873380	5	0.7	0.3	0.7	1000	10	700	1.5	10	70	30	70
GA04722S	263730	3873170	20	1	0.5	1	1500	<10	700	<1	20	100	7	500
GA04477S	266550	3875310	3	0.7	0.3	0.3	1500	30	300	1.5	10	70	20	50
						ROCKS								
KH04402R	267290	3880240	1	0.2	1	0.2	700	10	100	1	5	<10	<5	<20
GA04403R	263125	3871940	3	1	1.5	0.5	1000	15	1000	1.5	10	20	20	<20
GA04404R	263235	3872120	0.07	<0.02	<0.05	0.007	300	10	<20	<1	<5	<10	<5	<20
KH04404R	267560	3880770	7	2	0.2	1	300	10	1000	<1	7	100	70	150
KH04405R	267530	3880600	10	2	1.5	1	1000	<10	1000	<1	20	100	7	50
GA04405R	263140	3872290	0.2	0.05	<0.05	0.03	100	15	300	<1	<5	<10	<5	50
GA04406R	263080	3872300	0.15	0.02	1	0.01	200	15	300	3	<5	<10	<5	<20
KH04407R	267900	3880300	2	0.5	0.1	0.3	200	15	1500	<1	5	20	7	<20
GA04407R	263120	3872690	5	1	<0.05	0.5	1000	20	1000	1	7	50	50	100
GA04408R	263040	3872900	1.5	0.2	1.5	0.5	1500	15	100	1.5	7	20	5	<20
KH04408R	267900	3880000	3	1	1	0.5	1000	10	200	1.5	10	30	10	70
GA04409R	263020	3873160	15	2	2	>1.	1500	15	50	1	50	70	300	<20
KH04409R	268100	3880150	5	1	0.2	0.5	1000	10	1000	<1	10	50	<5	100
KH04410R	268470	3877400	5	1.5	0.2	0.5	500	15	1000	<1	10	50	10	100
GA04410R	262860	3873420	7	1	0.7	0.5	1000	10	700	1.5	10	50	70	100
KH04411R	266800	3879080	7	2	0.1	0.5	1000	20	1000	<1	10	70	30	100
GA04411R	262760	3873880	5	1	0.7	0.5	1000	<10	500	1.5	15	50	<5	100
KH04412R	268230	3878840	3	1	0.05	0.5	200	<10	1500	<1	10	30	30	50
GA04412R	262800	3874180	1	0.3	1	0.15	300	10	300	2	5	10	<5	50
GA04413R	262700	3874540	3	1	0.2	0.3	700	<10	1500	<1	15	20	5	100
KH04413R	267890	3878800	10	1.5	0.05	0.5	1000	10	1000	<1	30	50	30	100
GA04414R	262580	3874820	7	1	0.7	0.3	1000	<10	300	1.5	10	50	30	70
GA04415R	262286	3875220	10	1	1	0.7	1500	<10	700	1	20	50	20	70

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
						STREAM SEDIMENTS								
GA03431S	<5	<20	20	15	15	<10	100	70	70	<200	300	<100	-	-
GA03445S	<5	<20	15	10	10	<10	<100	70	50	<200	500	<100	-	-
GA04321S	<5	20	20	30	15	<10	<100	70	20	200	1000	<100	<.05	35
GA04323S	<5	20	30	15	30	<10	100	200	30	<200	200	<100	<.05	55
GA04325S	<5	20	50	20	30	<10	<100	150	30	<200	700	<100	<.05	55
GA04327S	<5	20	30	20	30	<10	150	70	70	<200	200	<100	<.05	75
GA04329S	<5	20	30	20	15	<10	<100	100	50	<200	1000	<100	<.05	85
GA04331S	<5	<20	30	20	15	<10	<100	100	20	<200	500	<100	<.05	65
KH04416S	<5	<20	20	20	20	<10	<100	150	150	<200	1000	<100	-	-
KH04418S	<5	<20	20	20	15	<10	100	100	50	<200	500	<100	-	-
KH04422S	<5	<20	20	20	15	<10	100	100	150	<200	500	<100	-	-
KH04426S	<5	<20	15	15	10	<10	150	50	50	<200	300	<100	-	-
KH04428S	<5	<20	20	20	10	<10	100	50	30	<200	300	<100	-	-
KH04432S	<5	<20	20	20	10	<10	150	100	30	<200	500	<100	-	-
KH04434S	<5	<20	15	10	15	<10	100	100	30	<200	500	<100	-	-
KH04437S	<5	<20	15	15	20	<10	100	150	70	<200	700	<100	-	-
KH04438S	<5	<20	20	15	20	<10	200	100	30	<200	700	<100	-	-
GA04502S	<5	<20	30	70	20	<10	200	100	70	<200	300	<100	<0.05	-
GA04512S	<5	30	15	20	20	<10	100	150	30	<200	1000	<100	<0.05	-
GA04514S	<5	<20	15	10	20	<10	100	150	30	<200	300	<100	<0.05	-
GA04607S	<5	20	30	30	30	<10	100	150	50	<200	500	<100	<0.05	-
KH04619S	<5	<20	20	30	15	<10	200	100	50	<200	700	<100	<0.05	-
KH04621S	<5	<20	20	50	20	<10	200	100	50	<200	1000	<100	<0.05	-
GA04717S	<5	30	50	30	20	<10	<100	100	50	<200	500	<100	<0.05	-
GA04720S	<5	<20	30	30	15	<10	<100	100	70	<200	1000	<100	<0.05	-
GA04722S	<5	20	30	20	30	<10	<100	200	300	<200	1000	<100	<0.05	-
GA04477S	<5	<20	30	30	15	<10	<100	100	30	<200	100	<100	<0.05	-
						ROCKS								
KH04402R	<5	<20	<5	<10	<5	<10	200	15	10	<200	500	<100	-	-
GA04403R	<5	<20	20	30	15	<10	300	70	20	<200	200	<100	-	-
GA04404R	<5	<20	<5	<10	<5	<10	<100	<10	<10	<200	<10	<100	-	-
KH04404R	<5	20	10	15	20	<10	100	100	30	<200	300	<100	-	-
KH04405R	<5	20	30	15	30	<10	300	150	70	<200	300	<100	-	-
GA04405R	<5	<20	<5	<10	5	<10	<100	10	10	<200	10	<100	-	-
GA04406R	<5	<20	<5	20	<5	<10	300	<10	<10	<200	15	<100	-	-
KH04407R	<5	<20	10	10	7	<10	100	50	15	<200	200	<100	-	-
GA04407R	<5	<20	10	30	20	<10	100	70	50	<200	150	<100	-	-
GA04408R	<5	<20	20	<10	10	<10	200	50	30	<200	300	<100	-	-
KH04408R	<5	<20	20	20	10	<10	200	50	30	<200	200	<100	-	-
GA04409R	<5	<20	100	20	70	<10	100	500	50	200	100	<100	-	-
KH04409R	<5	20	30	10	15	<10	150	70	50	<200	200	<100	-	-
KH04410R	<5	<20	15	30	20	<10	150	70	50	<200	200	<100	-	-
GA04410R	<5	<20	20	20	15	<10	200	70	50	200	100	<100	-	-
KH04411R	<5	<20	15	30	20	<10	100	70	50	<200	100	<100	-	-
GA04411R	<5	<20	30	20	15	<10	200	70	30	<200	200	<100	-	-
KH04412R	<5	<20	20	50	10	<10	200	50	20	<200	150	<100	-	-
GA04412R	<5	<20	5	20	5	<10	200	20	50	<200	200	<100	-	-
GA04413R	<5	<20	20	50	10	<10	200	50	30	200	100	<100	-	-
KH04413R	<5	<20	70	100	20	<10	150	70	100	<200	100	<100	-	-
GA04414R	<5	<20	15	20	20	<10	200	70	50	<200	150	<100	-	-
GA04415R	<5	<20	70	20	20	<10	300	70	100	<200	500	<100	-	-

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
						ROCKS								
GA04416R	266800	3875370	3	1	0.5	0.5	1000	<10	700	1.5	10	50	20	100
GA04417R	266680	3875070	5	0.7	0.3	0.5	300	15	500	1	5	50	10	<20
GA04418R	266580	3874480	2	0.7	0.5	0.5	500	10	500	1	10	50	10	50
GA04419R	263100	3875240	10	1.5	0.15	0.5	1500	10	1000	<1	15	50	70	150
KH04420R	267222	3879290	2	1	0.5	0.5	500	10	1000	1	10	20	10	50
GA04420R	263220	3875130	5	1	0.3	0.7	700	10	1000	<1	10	50	15	100
GA04421R	263260	3874960	0.2	0.02	0.5	0.01	50	10	700	1.5	<5	<10	10	<20
GA04422R	263640	3875340	1.5	0.3	0.05	0.2	300	10	1000	<1	10	15	15	70
GA04423R	263750	3875440	0.2	0.05	0.07	0.07	50	10	700	<1	<5	<10	<5	<20
GA04424R	264120	3875100	3	0.7	0.3	0.5	700	<10	700	1	7	30	10	50
GA04425R	264220	3874880	10	1	0.5	0.7	1500	<10	500	1	15	50	50	100
GA04426R	262580	3875320	2	0.5	0.7	0.5	700	10	300	<1	7	20	<5	50
GA04427R	266330	3874000	10	1	<0.05	0.5	1000	15	1000	1	10	70	15	200
GA04428R	266130	3874030	0.1	<0.02	<0.05	0.015	50	10	200	<1	<5	<10	<5	<20
KH04429R	266870	3877710	5	1	<0.05	0.5	700	10	500	1	10	30	10	100
GA04430R	265910	3874110	2	0.5	0.1	0.3	1500	15	500	1	10	30	10	<20
KH04430R	266830	3877530	7	2	0.5	1	1000	<10	700	<1	30	70	30	150
KH04433R	266710	3877190	10	2	0.5	0.7	1000	10	1000	<1	30	50	70	150
GA04433R	265560	3874450	3	0.7	2	0.5	1000	<10	500	1.5	10	50	15	50
GA04435R	265180	3874380	15	0.2	0.15	0.5	2000	<10	700	1	30	70	150	100
GA04436R	265110	3874270	15	0.2	<0.05	0.5	1000	15	1000	1	20	50	100	150
GA04437R	264840	3874290	2	0.7	0.5	0.5	500	10	700	1.5	7	20	7	50
GA04438R	264560	3874190	3	0.7	0.5	0.5	1000	<10	700	1	7	30	20	50
GA04439R	264440	3873770	1	0.2	1	1	1000	15	150	1.5	5	20	<5	50
GA04440R	264580	3873580	<0.05	<0.02	<0.05	0.007	20	10	<20	<1	<5	<10	<5	<20
GA04443R	265180	3873140	2	0.7	2	0.5	2000	10	50	1.5	7	20	20	50
GA04444R	265540	3873310	2	0.3	0.05	0.3	700	20	300	<1	7	30	7	50
GA04447R	265800	3873410	1.5	0.2	0.2	0.3	500	15	700	1	7	20	10	50
GA04450R	266900	3872140	15	3	2	0.5	2000	<10	<20	<1	70	100	50	<20
KH04451R	266960	3880040	2	1	0.15	0.5	100	<10	2000	<1	10	20	15	500
KH04452R	266900	3879830	3	1	1.5	0.5	1000	<10	200	1.5	10	30	15	<20
KH04453R	266720	3879770	10	1.5	0.5	0.5	1500	<10	1000	1	20	70	30	100
KH04454R	266300	3879950	10	1.5	0.7	0.5	1000	<10	700	1	15	50	20	100
KH04455R	266180	3879630	1	0.7	0.5	0.2	1000	10	200	1.5	7	10	<5	50
KH04456R	265960	3879450	2	0.7	0.5	0.5	700	<10	700	1.5	10	20	10	50
KH04457R	265400	3879100	2	0.5	0.7	0.2	500	10	150	1.5	10	10	<5	<20
KH04458R	265340	3878830	10	2	5	1	2000	20	<20	<1	30	100	150	<20
KH04459R	265240	3878770	1.5	0.5	0.3	0.2	200	10	150	1	5	<10	5	50
KH04460R	264870	3878680	3	1	0.3	0.3	1000	<10	1000	<1	7	15	10	50
KH04461R	264720	3878470	5	0.7	2	0.5	1500	10	200	1	10	30	20	50
KH04462R	264440	3878160	10	3	3	0.5	1500	<10	50	<1	50	500	150	<20
KH04463R	265140	3878620	2	0.7	0.5	0.5	1000	15	700	1	10	10	<5	70
KH04464R	265150	3878490	2	0.7	0.3	0.5	1000	<10	700	1	10	15	<5	100
KH04465R	265050	3878380	0.15	<0.02	0.07	0.02	50	<10	<20	<1	<5	<10	<5	<20
KH04466R	264880	3878380	10	2	1	0.5	1000	<10	1000	1	20	50	30	100
KH04467R	264860	3878150	5	1	1	0.5	1500	10	300	1	10	20	15	<20
KH04468R	265250	3878250	5	1	0.15	0.5	700	10	2000	<1	15	30	10	50
KH04469R	265280	3878290	7	1	0.15	0.5	1000	<10	1000	<1	15	50	15	100
KH04470R	265430	3877510	1.5	0.5	0.2	0.3	1000	10	1500	<1	5	10	<5	<20
KH04472R	265710	3877040	10	2	3	0.5	1500	<10	100	<1	30	100	100	<20
KH04473R	265850	3876670	15	10	2	0.3	1500	<10	100	<1	70	1000	30	<20
KH04474R	266030	3876290	7	1.5	0.7	0.5	1500	<10	1500	1	10	50	10	100

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
						ROCKS								
GA04416R	<5	<20	20	30	10	<10	200	70	30	<200	500	<100	-	-
GA04417R	<5	<20	5	20	10	<10	100	70	20	<200	300	<100	-	-
GA04418R	<5	<20	20	20	10	<10	200	50	20	<200	150	<100	-	-
GA04419R	<5	20	20	30	20	<10	200	70	70	<200	150	<100	-	-
KH04420R	<5	<20	20	20	10	<10	150	50	50	<200	200	<100	-	-
GA04420R	<5	<20	15	30	15	<10	300	70	70	<200	200	<100	-	-
GA04421R	<5	<20	<5	50	<5	<10	200	<10	15	<200	150	<100	-	-
GA04422R	<5	<20	15	30	7	<10	100	30	20	<200	100	<100	-	-
GA04423R	<5	<20	<5	<10	<5	<10	100	10	<10	<200	500	<100	-	-
GA04424R	<5	<20	20	10	10	<10	150	50	50	<200	500	<100	-	-
GA04425R	<5	20	20	15	20	<10	100	100	70	<200	100	<100	-	-
GA04426R	<5	<20	10	<10	5	<10	150	50	30	<200	700	<100	-	-
GA04427R	<5	<20	30	15	15	<10	100	70	70	<200	300	<100	-	-
GA04428R	<5	<20	<5	<10	<5	<10	<100	10	10	<200	<10	<100	-	-
KH04429R	<5	<20	15	<10	15	<10	100	50	50	<200	300	<100	-	-
GA04430R	<5	<20	15	15	10	<10	<100	50	20	<200	150	<100	-	-
KH04430R	<5	20	50	20	20	<10	150	100	100	<200	500	<100	-	-
KH04433R	<5	20	30	20	20	<10	100	100	50	<200	500	<100	-	-
GA04433R	<5	<20	20	15	10	<10	300	70	50	<200	300	<100	-	-
GA04435R	<5	<20	50	50	20	<10	100	100	50	<200	100	<100	-	-
GA04436R	<5	20	30	50	20	<10	150	100	100	<200	100	<100	-	-
GA04437R	<5	<20	15	30	10	<10	200	50	50	<200	300	<100	-	-
GA04438R	<5	<20	15	10	10	<10	100	50	30	<200	200	<100	-	-
GA04439R	<5	<20	10	<10	10	<10	100	50	30	<200	700	<100	-	-
GA04440R	<5	<20	<5	<10	<5	<10	<100	<10	<10	<200	<10	<100	-	-
GA04443R	<5	<20	20	<10	10	<10	200	50	30	<200	150	<100	-	-
GA04444R	<5	<20	15	10	10	<10	<100	50	20	<200	200	<100	-	-
GA04447R	<5	<20	15	10	5	<10	200	50	15	<200	300	<100	-	-
GA04450R	<5	<20	70	<10	50	<10	<100	200	30	<200	30	<100	<0.05	-
KH04451R	<5	<20	15	100	5	<10	300	100	20	<200	150	100	<0.05	-
KH04452R	<5	<20	20	15	15	<10	200	70	30	<200	200	<100	<0.05	-
KH04453R	<5	<20	30	20	30	<10	200	100	50	200	150	<100	<0.05	-
KH04454R	<5	<20	20	30	20	<10	300	70	50	<200	100	<100	<0.05	-
KH04455R	<5	<20	15	20	7	<10	100	20	30	<200	150	<100	<0.05	-
KH04456R	<5	<20	15	10	7	<10	100	50	30	<200	200	<100	<0.05	-
KH04457R	<5	<20	15	20	7	<10	100	30	30	<200	200	<100	<0.05	-
KH04458R	5	<20	70	15	50	<10	200	300	50	<200	70	<100	<0.05	-
KH04459R	<5	<20	7	15	5	<10	100	20	15	<200	200	<100	<0.05	-
KH04460R	<5	<20	20	10	15	<10	150	50	50	<200	150	<100	<0.05	-
KH04461R	<5	<20	20	10	15	<10	300	50	50	<200	200	<100	<0.05	-
KH04462R	<5	<20	200	<10	30	<10	100	200	20	<200	200	<100	<0.05	-
KH04463R	<5	<20	15	10	10	<10	100	50	50	<200	150	<100	<0.05	-
KH04464R	<5	<20	15	10	7	<10	100	50	50	<200	150	<100	<0.05	-
KH04465R	<5	<20	<5	<10	<5	<10	<100	<10	<10	<200	<10	<100	<0.05	-
KH04466R	<5	<20	30	30	20	<10	300	100	50	<200	150	<100	<0.05	-
KH04467R	<5	<20	30	<10	15	<10	200	50	30	<200	200	<100	<0.05	-
KH04468R	<5	<20	20	<10	15	<10	100	70	30	<200	300	<100	<0.05	-
KH04469R	<5	<20	20	50	15	<10	100	70	30	<200	150	<100	<0.05	-
KH04470R	<5	<20	10	<10	5	<10	100	30	20	<200	150	<100	<0.05	-
KH04472R	<5	<20	70	<10	30	<10	100	200	20	<200	50	<100	<0.05	-
KH04473R	<5	<20	1000	<10	20	15	<100	150	30	<200	50	<100	<0.05	-
KH04474R	<5	<20	50	30	15	<10	200	70	50	<200	100	<100	<0.05	-

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
						ROCKS								
KH04475R	266090	3876000	5	1	<0.05	0.3	200	<10	700	<1	7	10	7	<20
GA04476R	266301	3875680	15	2	0.1	1	2000	<10	1000	<1	30	70	7	200
KH04480R	263280	3872120	1.5	0.5	1	0.2	300	10	300	2	7	15	5	50
GA04501R	266770	3875720	0.5	0.02	0.2	0.015	700	10	1500	1	<5	<10	<5	50
KH04501R	266710	3875950	3	1	0.2	0.5	700	<10	300	1	10	50	5	100
KH04502R	266850	3876150	7	1	0.7	0.5	1500	10	700	1	10	50	20	70
KH04503R	266850	3876150	7	3	5	0.5	1000	<10	100	<1	30	700	150	<20
KH04504R	266980	3876570	15	2	5	1	1500	<10	150	<1	50	10	70	<20
GA04504R	270740	3875670	5	0.7	0.1	0.7	500	10	700	<1	10	50	20	100
GA04505R	270730	3875310	3	0.7	0.5	0.7	300	15	700	<1	10	30	<5	<20
KH04505R	266880	3877000	5	1	1	0.5	1000	<10	1000	1	10	20	15	70
KH04506R	271010	3878190	2	0.5	1.5	0.7	1500	20	300	1	10	30	<5	<20
GA04506R	270740	3874960	5	1	0.7	0.7	1000	10	500	<1	10	30	10	<20
KH04507R	270830	3877770	0.7	0.2	1.5	0.15	100	10	200	1	5	<10	<5	<20
GA04507R	270960	3874760	3	0.5	0.5	0.5	1500	10	700	1	7	30	7	<20
GA04508R	271060	3874050	10	2	1	0.7	2000	<10	700	<1	30	50	20	50
KH04508R	270550	3877510	2	0.3	0.2	0.5	500	10	700	<1	5	30	<5	<20
KH04509R	270510	3877130	3	0.7	0.3	0.3	300	10	700	1	7	20	10	50
GA04509R	271190	3873550	10	1	0.2	0.7	500	<10	700	1.5	30	100	20	150
GA04510R	271150	3872990	3	0.7	0.5	0.5	1000	15	300	1	10	30	15	70
KH04510R	270320	3876920	5	0.7	0.3	0.5	1500	10	300	1	7	15	15	50
GA04511R	271080	3872660	10	1	0.1	0.7	700	10	1000	<1	30	50	<5	50
KH04511R	270050	3877130	10	2	3	0.5	2000	10	<20	1	20	100	10	<20
KH04512R	269990	3876830	5	1	<0.05	0.5	500	<10	1500	<1	15	50	20	100
KH04514R	269750	3876480	10	1.5	0.5	0.7	2000	10	700	1	10	70	100	150
KH04515R	270190	3876360	7	1	<0.05	0.5	1000	<10	700	<1	7	20	15	70
GA04516R	269730	3873200	5	0.7	0.7	0.7	700	10	300	1	10	50	<5	50
KH04516R	270360	3876410	5	1	<0.05	0.5	1000	<10	500	<1	7	10	<5	50
KH04517R	270720	3876470	3	0.7	0.7	0.3	1500	15	700	1	7	15	30	<20
GA04517R	269610	3873370	2	0.2	<0.05	0.5	500	15	700	<1	7	20	15	<20
KH04518R	270950	3876300	15	2	5	0.3	2000	<10	<20	1	50	150	<5	<20
GA04518R	269330	3873220	10	0.7	<0.05	0.7	2000	10	300	1	30	100	20	100
KH04519R	270880	3876020	10	0.7	0.2	0.7	1500	10	700	<1	20	70	50	100
GA04519R	269410	3873300	0.5	0.05	<0.05	0.05	200	15	1000	<1	5	<10	10	70
GA04520R	269170	3873120	2	0.1	<0.05	0.5	1000	10	700	<1	10	20	10	50
KH04520R	269530	3875950	2	0.5	0.2	0.5	1000	10	300	<1	5	10	<5	50
GA04521R	269000	3872950	7	1	0.7	0.5	2000	10	500	1	10	100	5	70
KH04521R	569260	3876760	3	0.7	3	0.3	1500	10	50	1.5	7	15	<5	<20
KH04522R	268940	3876610	5	1	1	0.3	1000	10	500	1.5	10	20	30	50
GA04522R	268900	3872890	10	3	3	0.5	2000	<10	<20	<1	50	100	7	<20
GA04523R	268450	3872580	5	<0.02	<0.05	0.3	1000	10	<20	<1	50	200	100	50
KH04523R	268940	3876610	15	3	2	1	1500	<10	<20	<1	50	50	150	<20
GA04524R	268100	3872540	0.5	0.15	0.2	0.07	100	10	100	3	5	<10	<5	<20
KH04524R	268730	3876600	10	2	1.5	0.5	300	10	700	<1	10	20	70	100
GA04525R	267950	3872360	2	0.7	0.5	0.3	500	10	700	1	7	10	10	<20
KH04525R	268890	3877050	10	1.5	0.7	0.5	1500	10	1000	1	20	30	30	150
GA04526R	267680	3872550	7	1	0.7	0.7	1500	10	500	1	15	30	5	<20
KH04526R	268620	3877000	10	1.5	1	0.5	1500	<10	700	1.5	15	50	15	70
KH04527R	268310	3876870	5	1	0.5	0.5	1500	10	200	1	7	30	10	70
KH04528R	267970	3876770	15	2	1.5	1	2000	<10	1500	<1	30	100	70	100
KH04529R	267770	3876110	3	1	1	0.5	500	10	200	1	10	30	<5	70
GA04600R	345957	8330000	5	2	2	0.3	700	<10	700	1	15	30	<5	70
GA04601R	345942	8330050	3	0.7	2	0.5	1500	50	200	1	7	20	7	50

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
						ROCKS								
KH04475R	<5	<20	7	<10	10	<10	<100	50	20	<200	300	<100	<0.05	-
GA04476R	<5	<20	70	20	30	<10	<100	200	100	<200	200	<100	<0.05	-
KH04480R	<5	<20	10	20	5	<10	500	30	20	<200	100	<100	-	-
GA04501R	<5	<20	<5	20	<5	<10	200	<10	10	<200	30	<100	<0.05	-
KH04501R	<5	<20	30	<10	20	<10	100	70	70	<200	100	<100	<0.05	-
KH04502R	<5	<20	30	10	15	<10	100	70	50	<200	200	<100	<0.05	-
KH04503R	<5	<20	200	<10	30	15	100	200	20	<200	50	<100	<0.05	-
KH04504R	<5	<20	30	<10	50	<10	150	700	30	<200	50	<100	<0.05	-
GA04504R	<5	<20	30	<10	10	<10	100	150	30	<200	150	<100	<0.05	-
GA04505R	<5	<20	20	10	10	<10	200	70	20	<200	500	<100	<0.05	-
KH04505R	<5	<20	20	30	10	<10	150	70	50	<200	200	<100	<0.05	-
KH04506R	<5	<20	15	<10	10	<10	150	70	30	<200	200	<100	<0.05	-
GA04506R	<5	<20	15	20	10	<10	200	70	30	<200	300	<100	<0.05	-
KH04507R	<5	<20	5	15	<5	<10	500	20	<10	<200	50	<100	<0.05	-
GA04507R	<5	<20	15	15	10	<10	200	50	20	<200	200	<100	<0.05	-
GA04508R	<5	<20	70	15	20	<10	150	200	30	<200	500	<100	<0.05	-
KH04508R	<5	<20	10	15	10	<10	100	50	20	<200	300	<100	<0.05	-
KH04509R	<5	20	20	20	10	<10	100	50	30	<200	100	<100	<0.05	-
GA04509R	<5	<20	70	15	20	<10	150	150	70	<200	150	<100	<0.05	-
GA045010	<5	<20	30	20	15	<10	200	70	50	<200	100	<100	<0.05	-
KH04510R	<5	<20	15	10	10	<10	100	50	30	<200	200	<100	<0.05	-
GA04511R	<5	<20	50	20	15	<10	150	70	30	<200	200	<100	<0.05	-
KH04511R	<5	<20	70	<10	20	<10	100	200	50	<200	100	<100	<0.05	-
KH04512R	<5	20	30	50	15	<10	100	70	50	<200	200	<100	<0.05	-
KH04514R	<5	20	30	50	20	<10	100	100	70	<200	150	<100	<0.05	-
KH04515R	<5	20	15	<10	15	<10	100	50	50	<200	300	<100	<0.05	-
GA04516R	<5	<20	30	15	10	<10	200	100	20	<200	300	<100	<0.05	-
KH04516R	<5	<20	15	<10	10	<10	100	50	30	<200	200	<100	<0.05	-
KH04517R	<5	<20	15	10	10	<10	200	50	20	<200	150	<100	<0.05	-
GA04517R	<5	<20	15	10	10	<10	<100	50	10	<200	500	<100	<0.05	-
KH04518R	<5	<20	100	<10	30	<10	100	300	20	<200	20	<100	<0.05	-
GA04518R	<5	<20	50	15	20	<10	<100	100	70	200	100	<100	<0.05	-
KH04519R	<5	<20	70	15	20	<10	100	200	50	<200	300	<100	<0.05	-
GA04519R	<5	<20	10	<10	<5	<10	100	<10	10	<200	50	<100	<0.05	-
GA04520R	<5	<20	20	10	10	<10	<100	50	15	<200	700	<100	<0.05	-
KH04520R	<5	<20	7	10	5	<10	100	50	20	<200	300	<100	<0.05	-
GA04521R	<5	<20	50	10	20	<10	200	100	50	<200	200	<100	<0.05	-
KH04521R	<5	<20	15	<10	10	<10	300	50	50	<200	150	<100	<0.05	-
KH04522R	<5	<20	20	10	15	<10	200	70	50	<200	150	<100	<0.05	-
GA04522R	<5	<20	70	<10	30	<10	100	300	30	<200	20	<100	<0.05	-
GA04523R	<5	<20	10	10	30	<10	<100	300	<10	<200	<10	<100	<0.05	-
KH04523R	<5	<20	70	<10	30	<10	150	500	30	<200	70	<100	<0.05	-
GA04524R	<5	<20	10	10	5	<10	100	20	<10	<200	30	<100	<0.05	-
KH04524R	<5	<20	30	50	15	<10	200	70	50	<200	100	<100	<0.05	-
GA04525R	<5	<20	15	15	10	<10	300	30	20	<200	200	<100	<0.05	-
KH04525R	<5	<20	30	50	20	<10	200	70	70	<200	70	<100	<0.05	-
GA04526R	<5	<20	30	15	15	<10	200	100	50	<200	200	<100	<0.05	-
KH04526R	<5	<20	30	20	20	<10	300	100	50	<200	100	<100	<0.05	-
KH04527R	<5	<20	20	10	10	<10	150	70	30	<200	200	<100	<0.05	-
KH04528R	<5	20	70	15	30	<10	300	200	70	<200	700	<100	<0.05	-
KH04529R	<5	<20	20	<10	10	<10	200	100	20	<200	500	<100	<0.05	-
GA04600R	<5	<20	20	10	20	<10	300	50	30	<200	150	<100	<0.05	-
GA04601R	<5	<20	10	<10	10	<10	300	70	30	<200	200	<100	<0.05	-

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
						ROCKS								
GA04602R	345939	8330070	10	1	1	0.7	1500	<10	500	<1	20	50	<5	70
GA04603R	345933	8330080	10	3	5	0.5	1000	10	150	<1	30	70	15	<20
GA04604R	345923	8330090	7	3	5	0.5	1000	<10	100	<1	30	10	30	<20
KH04608R	350250	8331330	5	1	2	0.5	1000	<10	500	1	10	10	30	50
KH04610R	350243	8331500	1.5	0.05	0.5	0.01	>5000.	100	<20	1.5	<5	<10	<5	100
KH04611R	350236	8331500	5	1	2	0.5	1000	<10	700	1	10	<10	<5	<20
KH04612R	350226	8331540	5	1	1	0.7	1500	10	500	<1	10	20	10	70
KH04613R	350222	8331370	3	1	1.5	0.5	150	<10	200	<1	5	<10	7	<20
KH04615R	350221	8331280	3	0.7	0.2	1	100	<10	1000	<1	10	20	<5	50
KH04616R	350250	8332020	2	0.7	1.5	0.3	500	<10	500	2	7	<10	<5	<20
KH04617R	350316	8332010	3	1	1.5	0.3	1000	<10	500	1	10	<10	5	50
KH04618R	350337	8331540	5	1	0.7	0.5	700	<10	500	<1	10	20	15	70
KH04701R	264400	3877510	10	1.5	0.7	1	2000	15	1500	1	10	50	7	<20
KH04702R	264450	3877150	10	7	7	0.7	2000	10	150	<1	20	20	100	<20
KH04703R	264450	3877150	2	2	5	0.3	200	20	1000	2	10	20	20	70
KH04704R	264170	3876610	0.5	0.07	0.5	0.07	50	10	150	<1	<5	<10	7	70
KH04705R	264220	3876120	20	2	0.05	0.7	700	10	1500	1	50	70	30	300
KH04707R	264680	3875970	2	0.02	0.05	0.02	20	10	500	<1	5	<10	<5	<20
KH04708R	264930	3875990	10	2	0.07	0.7	1000	<10	1500	<1	50	50	10	200
KH04709R	264100	3875960	10	5	2	0.5	1000	<10	100	<1	70	500	100	<20
KH04710R	264310	3875900	15	3	0.3	0.7	1000	<10	100	1	70	30	100	<20
GA04711R	265510	3875690	15	10	10	0.7	5000	20	70	1	50	700	30	<20
GA04712R	265750	3875480	5	1	0.05	0.5	500	10	1000	<1	20	50	<5	70
GA04713R	265830	3875350	20	7	5	0.7	2000	10	70	<1	100	70	200	<20
GA04714R	265860	3875250	0.15	0.02	<0.05	0.007	15	15	100	<1	<5	<10	<5	<20
GA04715R	265960	3875180	10	3	5	0.5	2000	<10	100	<1	30	70	70	<20
GA04716R	266040	3875110	0.15	<0.02	0.2	0.007	200	10	200	1.5	5	<10	<5	<20
KH04727R	269870	3878400	3	1	2	0.5	200	10	1500	<1	20	10	100	50
KH04728R	268900	3879150	3	0.7	2	0.5	1500	10	300	1.5	7	20	10	<20
KH04729R	268500	3879690	3	0.7	1	0.5	1000	10	500	1	7	20	15	70
KH04730R	268880	3878950	5	1.5	0.1	0.5	500	10	700	<1	10	30	30	70
KH04731R	269210	3878560	10	1.5	0.15	0.7	700	<10	1500	<1	15	50	50	150
KH04732R	268760	3878320	5	1	0.3	0.3	1000	10	200	<1	10	20	10	50
KH04733R	268760	3878320	0.15	<0.02	0.2	0.01	30	20	1000	<1	<5	<10	<5	<20
KH04734R	268960	3877740	2	0.7	1	0.5	1500	10	150	1	7	15	5	50
KH04735R	268770	3877680	20	3	0.5	0.7	3000	15	1500	<1	20	150	70	200
KH04736R	268370	3877500	20	3	0.1	1	2000	10	1500	<1	20	100	150	200
KH04737R	268110	3877340	10	2	3	1	2000	20	700	1.5	10	30	15	70
KH04738R	268040	3877140	20	2	0.15	1	5000	15	1500	<1	20	70	50	200
KH04739R	267530	3846870	20	3	0.1	1	1000	15	2000	<1	50	100	200	200
KH04740R	267490	3876680	20	10	5	1	2000	<10	200	<1	70	700	150	<20
KH04741R	267420	3876280	15	10	10	0.5	2000	<10	100	<1	50	500	200	<20
KH04742R	266960	3875920	15	2	0.1	1	2000	10	1500	<1	20	100	30	100
KH04743R	266950	3875860	15	10	7	0.7	2000	<10	150	<1	50	1000	200	<20
GA04744R	266840	3875670	15	5	1.5	0.3	1500	10	<20	<1	50	1000	30	<20
GA04745R	269680	3873820	3	0.7	0.2	0.3	200	10	1000	<1	7	20	10	<20
GA04746R	269730	3874000	7	1	0.1	0.5	700	10	1000	<1	10	50	10	<20
GA04747R	269930	3874520	5	0.7	0.7	0.5	1500	<10	300	1	10	50	<5	50
GA04748R	269980	3874660	5	1	0.2	0.5	1000	<10	1000	<1	10	50	<5	50
GA04749R	270030	3874820	0.15	0.02	<0.05	0.02	10	10	500	<1	<5	<10	5	<20
GA04750R	270080	3874120	10	1.5	0.05	0.5	700	10	1000	<1	10	50	7	200
GA04751R	269900	3875340	10	1.5	<0.05	0.5	500	10	700	<1	10	50	20	100
GA04752R	269050	3875130	2	0.7	0.2	0.3	1000	<10	300	<1	5	10	<5	<20
GA04753R	269420	3874640	3	0.7	0.7	0.5	2000	10	150	1	10	10	50	<20

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
						ROCKS								
GA04602R	<5	<20	30	10	20	<10	200	150	50	<200	150	<100	<0.05	-
GA04603R	<5	<20	30	<10	15	<10	500	150	<10	<200	20	<100	<0.05	-
GA04604R	<5	<20	20	<10	20	<10	300	150	10	<200	20	<100	<0.05	-
KH04608R	<5	<20	15	15	15	<10	300	70	30	<200	200	<100	<0.05	-
KH04610R	<5	<20	<5	20	<5	<10	<100	10	1500	<200	700	<100	<0.05	-
KH04611R	<5	<20	<5	<10	7	<10	300	50	20	<200	200	<100	<0.05	-
KH04612R	<5	<20	20	10	15	<10	200	100	50	<200	500	<100	<0.05	-
KH04613R	<5	<20	<5	15	<5	<10	200	50	<10	<200	100	<100	<0.05	-
KH04615R	<5	<20	15	15	10	<10	200	70	15	<200	700	<100	<0.05	-
KH04616R	<5	<20	10	20	5	<10	200	30	15	<200	100	<100	<0.05	-
KH04617R	<5	<20	5	10	15	<10	500	50	30	<200	300	<100	<0.05	-
KH04618R	<5	<20	15	<10	10	<10	200	70	30	<200	1000	<100	<0.05	-
KH04701R	<5	20	15	20	15	<10	150	100	50	<200	1000	<100	<0.05	-
KH04702R	<5	<20	20	20	30	<10	200	300	30	200	500	<100	<0.05	-
KH04703R	<5	<20	20	70	7	<10	500	30	70	<200	50	<100	<0.05	-
KH04704R	<5	<20	10	<10	<5	<10	200	20	<10	<200	200	<100	<0.05	-
KH04705R	<5	20	50	<10	100	<10	<100	200	200	<200	1000	<100	<0.05	-
KH04707R	<5	<20	<5	<10	<5	<10	100	<10	<10	<200	150	<100	<0.05	-
KH04708R	<5	50	30	15	30	<10	<100	100	150	<200	200	<100	<0.05	-
KH04709R	<5	<20	50	<10	30	<10	<100	200	20	<200	70	<100	<0.05	-
KH04710R	<5	<20	70	<10	50	<10	<100	500	50	<200	70	<100	<0.05	-
GA04711R	<5	<20	200	20	50	<10	200	500	50	<200	100	<100	<0.05	-
GA04712R	<5	<20	15	<10	15	<10	<100	50	50	<200	>1000	<100	<0.05	-
GA04713R	<5	<20	200	<10	50	<10	100	200	50	<200	50	<100	<0.05	-
GA04714R	<5	<20	<5	<10	<5	<10	<100	<10	<10	<200	70	<100	<0.05	-
GA04715R	<5	<20	50	<10	30	<10	<100	200	20	<200	20	<100	<0.05	-
GA04716R	<5	<20	<5	20	<5	<10	200	<10	10	<200	<10	<100	<0.05	-
KH04727R	<5	<20	20	50	10	<10	150	30	20	<200	200	<100	<0.05	-
KH04728R	<5	<20	7	10	10	<10	200	50	50	<200	500	<100	<0.05	-
KH04729R	<5	<20	7	<10	10	<10	100	50	50	<200	300	<100	<0.05	-
KH04730R	<5	<20	10	20	15	<10	100	70	50	<200	200	<100	<0.05	-
KH04731R	<5	<20	15	50	20	<10	100	100	70	<200	150	<100	<0.05	-
KH04732R	<5	<20	20	<10	10	<10	200	50	50	<200	500	<100	<0.05	-
KH04733R	<5	<20	<5	30	<5	<10	300	<10	<10	<200	<10	<100	<0.05	-
KH04734R	<5	<20	15	<10	10	<10	200	30	50	<200	200	<100	<0.05	-
KH04735R	<5	<20	50	15	50	<10	200	200	150	200	200	<100	<0.05	-
KH04736R	<5	20	50	30	30	<10	100	200	150	200	150	<100	<0.05	-
KH04737R	<5	<20	20	15	20	<10	300	100	70	<200	1000	<100	<0.05	-
KH04738R	<5	50	30	50	50	<10	100	150	150	200	1000	<100	<0.05	-
KH04739R	<5	50	50	100	50	<10	100	200	150	200	500	<100	<0.05	-
KH04740R	<5	<20	300	20	50	<10	100	500	30	<200	70	<100	<0.05	-
KH04741R	<5	<20	150	<10	50	<10	100	500	30	<200	100	<100	<0.05	-
KH04742R	<5	30	50	50	30	<10	100	150	100	200	1000	<100	<0.05	-
KH04743R	<5	<20	200	<10	50	<10	100	500	30	<200	50	<100	<0.05	-
GA04744R	<5	<20	1000	<10	20	<10	<100	100	20	<200	50	<100	<0.05	-
GA04745R	<5	<20	20	10	10	<10	200	50	20	<200	100	<100	<0.05	-
GA04746R	<5	<20	30	10	15	<10	150	100	30	<200	200	<100	<0.05	-
GA04747R	<5	<20	20	10	10	<10	200	100	50	<200	150	<100	<0.05	-
GA04748R	<5	<20	30	10	15	<10	200	70	30	<200	200	<100	<0.05	-
GA04749R	<5	<20	<5	<10	<5	<10	<100	10	<10	<200	150	<100	<0.05	-
GA04750R	<5	20	15	30	20	<10	150	100	100	<200	150	<100	<0.05	-
GA04751R	<5	<20	20	30	20	<10	100	100	70	<200	150	<100	<0.05	-
GA04752R	<5	<20	7	<10	7	<10	100	50	20	<200	150	<100	<0.05	-
GA04753R	<5	<20	20	<10	20	<10	200	50	50	<200	200	<100	<0.05	-

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
						ROCKS								
GA04754R	288940	3874410	1.5	0.5	0.2	0.3	500	10	150	<1	7	10	5	50
GA04755R	268430	3874220	2	0.2	<0.05	0.5	100	10	200	<1	7	20	20	50
GA04757R	267750	3873640	10	3	5	0.5	1500	<10	<20	<1	70	70	50	<20
GA04758R	267660	3873300	10	2	5	0.5	1500	<10	<20	<1	50	100	15	<20
GA04759R	267590	3873030	3	1.5	0.7	0.5	700	10	700	1	15	20	50	<20
GA04761R	260840	3874250	7	2	0.1	0.5	1000	<10	1500	<1	20	50	20	100
GA04762R	261000	3874150	10	3	3	0.5	1500	<10	<20	<1	70	30	70	<20
GA04763R	261060	3873980	0.2	0.1	0.7	0.02	50	10	500	1.5	5	<10	<5	<20
GA04764R	260940	3873710	2	0.5	0.7	0.3	700	10	300	1	7	10	<5	100
GA04766R	260960	3873030	2	0.7	0.7	0.3	700	10	200	1	7	10	15	50
						SOILS								
KH04401D	267170	3880210	3	0.5	0.05	0.7	500	20	300	1.5	15	50	50	50
GA04401D	262920	3871340	5	0.1	<0.05	0.7	200	30	150	1	10	50	20	50
KH04403D	367350	3880640	2	0.1	<0.05	0.2	300	10	150	1	10	50	20	20
KH04406D	267600	3880190	2	0.2	0.05	0.5	500	30	200	1	10	50	20	20
KH04421D	267140	3879040	1.5	0.5	0.1	0.3	300	<10	200	1.5	15	30	20	50
KH04424D	267000	3878350	3	0.5	0.05	0.5	500	10	200	1.5	15	50	50	50
GA04429D	266070	3874080	7	0.3	<0.05	1	200	30	200	1	15	50	50	100
GA04434D	265210	3874800	1.5	0.1	0.1	0.2	700	30	150	1.5	15	50	20	100
GA04441D	264800	3873230	1.5	0.2	<0.05	0.5	300	10	150	1	10	30	20	20
GA04442D	265040	3873150	2	0.05	<0.05	0.7	150	15	200	1	10	50	15	20
						PANNED-CONCENTRATES								
GAO4322C	267160	3869880	1.5	0.07	<.1	0.15	50	20	150	<2	10	200	<10	70
GAO4324C	266900	3872200	1.5	0.1	1	>2	100	20	100	<2	<10	150	<10	70
GAO4326C	266740	3873860	1	0.15	0.1	0.7	70	20	<50	<2	<10	150	<10	100
GAO4328C	266640	3874680	1	0.2	2	>2	70	20	70	<2	<10	200	5	100
GAO4330C	262160	3873460	1.5	0.15	0.3	0.5	100	20	100	<2	<10	70	<10	300
GAO4332C	262140	3873540	1	0.1	0.1	>2	30	20	<50	<2	<10	70	<10	<50
KH04415C	266720	3877400	0.3	<0.05	0.5	0.3	70	20	300	<2	<10	20	<10	50
KH04417C	267220	3879130	0.3	<0.05	0.1	0.5	70	20	300	<2	<10	30	<10	500
KH04419C	267280	3879120	0.7	<0.05	0.1	0.2	70	20	200	<2	<10	50	<10	300
KH04423C	266950	3878770	0.5	0.07	1	0.3	70	20	500	2	<10	<20	<10	700
KH04425C	266980	3875070	1	0.05	0.2	0.5	100	<20	<50	2	<10	100	<10	100
KH04427C	266880	3878110	0.5	0.05	0.7	0.7	70	20	300	<2	<10	30	<10	100
KH04431C	266530	3877200	0.7	0.07	1	>2.	70	20	<50	<2	<10	100	<10	150
GA04432C	265610	3874290	0.7	0.05	0.2	2	70	20	<50	<2	<10	70	<10	100
KH04435C	271280	3878040	0.7	<0.05	<0.1	0.5	50	20	<50	<2	<10	100	<10	50
KH04436C	271020	3880620	0.5	<0.05	0.2	0.5	50	20	100	<2	<10	50	<10	100
KH04439C	270200	3882460	0.5	0.1	2	0.3	70	20	200	2	<10	<20	<10	200
GA04446C	265800	3873410	1	<0.05	<0.1	0.3	70	20	<50	<2	<10	70	<10	100
GA04478C	266550	3875310	0.7	0.15	0.15	>2.	50	20	200	<2	10	100	<10	150
GA04503C	266460	3874300	0.5	0.1	1	2	50	20	100	<2	<10	100	<10	150
GA04513C	271100	3872550	1	0.07	<0.1	0.7	50	20	<50	<2	<10	200	<10	<50
GA04515C	271230	3872700	0.7	0.05	<0.1	1.5	30	20	<50	<2	<10	150	<10	<50
GA04606C	271330	3873650	0.5	<0.05	0.1	1.5	30	20	<50	<2	<10	70	<10	<50
KH04620C	268020	3882350	0.5	0.1	0.1	>2.	30	20	<50	<2	10	150	<10	<50
KH04622C	268360	3883190	0.7	0.1	0.5	>2.	50	20	200	<2	<10	200	<10	100
GA04719C	263600	3873380	1	0.07	<0.1	>2.	50	20	<50	<2	<10	100	<10	150
GA04723C	263730	3873170	0.7	0.07	0.1	>2.	30	200	100	<2	<10	150	10	100

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, SOUTHERN NATAHALIA (Central Part)

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
						ROCKS								
GA04754R	<5	<20	10	<10	7	<10	100	30	20	<200	300	<100	<0.05	-
GA04755R	<5	<20	20	<10	10	<10	<100	50	30	<200	1000	<100	<0.05	-
GA04757R	<5	<20	50	<10	50	<10	<100	200	30	<200	20	<100	<0.05	-
GA04758R	<5	<20	50	10	30	<10	150	200	20	<200	20	<100	<0.05	-
GA04759R	<5	<20	10	20	15	<10	150	70	30	<200	150	<100	<0.05	-
GA04761R	<5	<20	15	50	20	<10	100	70	70	<200	200	<100	<0.05	-
GA04762R	<5	<20	50	<10	20	<10	100	100	20	<200	20	<100	<0.05	-
GA04763R	<5	<20	5	20	<5	<10	300	10	10	<200	<10	<100	<0.05	-
GA04764R	<5	<20	7	10	10	<10	200	30	50	<200	300	<100	<0.05	-
GA04766R	<5	<20	7	10	10	<10	200	30	50	<200	200	<100	<0.05	-
						SOILS								
KH04401D	<5	<20	20	30	15	<10	<100	70	30	<200	700	<100	-	-
GA04401D	<5	<20	20	20	15	<10	<100	100	30	<200	500	<100	-	-
KH04403D	<5	<20	5	15	7	<10	<100	50	15	<200	200	<100	-	-
KH04406D	<5	<20	10	15	10	<10	<100	70	50	<200	150	<100	-	-
KH04421D	<5	<20	10	15	7	<10	<100	50	30	<200	200	<100	-	-
KH04424D	<5	<20	20	20	15	<10	<100	70	50	<200	1000	<100	-	-
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