

Appendix A

GJAST-01 through GJAST-22 Borehole Logs

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BOREHOLE LOG GJO01-GJAST-01

PROJECT	LM	DATE DRILLED	10/15/2012	BIT SIZE(S) (IN)	3.25
LOCATION	GRAND JUNCTION, CO	DRILLING COMPANY	S.M. Stoller	CORE SIZE(S) (IN)	2.0
SITE	GRAND JUNCTION	DRILLING METHOD	Direct Push	LOGGED BY	Goodknight, C.
WELL NUMBER	GJO01-GJAST-01	DRILL OPERATOR	Trevino, J	WL (FT BGS)	
NORTH COORD. (FT)	454043.48	SAMPLING METHOD	Core Liner		
EAST COORD. (FT)	1127944.67	REMARKS	Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.		
SURFACE ELEV. (FT NGVD)	4571.62				
HOLE DEPTH (FT)	25.00				

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570		0 -5.0			0.0 - 2.5 ft. SANDY GRAVEL (GM); ~ 50 % gravel (up to 2.0" in diameter), sand mostly fine grained, pale brown (10 YR 6/3), dry.
5						2.5 - 5.0 ft. GRAVELLY SAND (SP); ~ 60% medium-fine grained sand, gravel (up to 1.5" in diameter), ~ 10% silt, light yellowish-brown (10 YR 6/4), dry.
	4565		5.0 - 10.0			5.0 9.0 SANDY GRAVEL (GM); ~ 50% gravel (up to 2.0" in diameter), calcareous, yellowish-brown (10 YR 5/4), dry.
						@ 8.0 - 9.0 ft. some limonitic coloration to the sand, moist at ~9.0 ft.
10						9.0 - 10.5 ft. GRAVELLY SAND (SP); ~ 70% fine-very fine grained sand (micaceous and slightly plastic), ~20% gravel (up to 2.0" in diameter), ~ 5% silt and clay (highly calcareous), moist.
	4560		10.0 -15.0			10.5 - 13.0 ft. SANDY GRAVEL (GM); ~ 60% gravel (up to 2.0 " in diameter), brown (10 YR 5/3).
						@ ~ 11.0 -12.0 ft. up to ~ 50% sand in interval, some saturation.
						@ ~ 13.0 ft. cobbles are greater than 2.0" in diameter.
15						13.0 - 16.5 ft.; no recovery.
	4555		15.0 - 20.0			16.5 - 17.5 ft. SANDY GRAVEL (GM); only ~ 1.5 ft. recovered from 15.0 - 20.0 ft. interval. sandy gravel from upper half, ~ 60% gravel (up to 2.0 " in diameter), ~ 40% sand, ~ 10% silt.
						17.5 - 18.5 ft.; no recovery.
20						18.5 - 20.0 ft. GRAVELLY SAND (SP); only ~ 1.5 ft. recovered from 15.0 - 20.0 ft. interval. gravelly sand from lower half, ~ 60 - 70% medium-fine grained sand, sub-rounded grains, ~ 30 - 40% gravel (up to 2.0" in diameter), dark reddish gray (2.5 YR 4/1), wet color.
	4550		20.0 - 25.0			20.0 - 22.5 ft.; no recovery.
						22.5 - 23.5 ft. GRAVELLY SAND (SP); ~ 50% sand, mostly medium grained, ~ 40% gravel (up to 1.5 " in diameter), ~ 10% silt, dark gray (2.5 YR 4/1), wet color.
25						23.5 - 25.0 ft. BEDROCK-BRUSHY BASIN MEMBER OF MORRISON FORMATION; soft, plastic, light olive gray (5 Y 6/1), moist.
	4545					Total Depth 25.0 ft.

GENERAL BOREHOLE WITH COLOR 4243-GJO01 GJAST-01-22 GP-I SHIP GDT 12/23/16

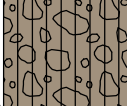


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BOREHOLE LOG GJO01-GJAST-02

PROJECT <u>LM</u>	DATE DRILLED <u>10/15/2012</u>	BIT SIZE(S) (IN) <u>3.25</u>
LOCATION <u>GRAND JUNCTION, CO</u>	DRILLING COMPANY <u>S.M. Stoller</u>	CORE SIZE(S) (IN) <u>2.0</u>
SITE <u>GRAND JUNCTION</u>	DRILLING METHOD <u>Direct Push</u>	LOGGED BY <u>Goodknight, C.</u>
WELL NUMBER <u>GJO01-GJAST-02</u>	DRILL OPERATOR <u>Trevino, J</u>	WL (FT BGS) _____
NORTH COORD. (FT) <u>454072.88</u>	SAMPLING METHOD <u>Core Liner</u>	
EAST COORD. (FT) <u>1127970.43</u>	REMARKS <u>Bentonite chips placed in hole and some soil above water surface to</u>	
SURFACE ELEV. (FT NGVD) <u>4570.77</u>	<u>abandon hole. Samples collected for analysis every 1.0 ft. when core was available.</u>	
HOLE DEPTH (FT) <u>24.50</u>		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570		0 -5.0			0 - 2.5 ft. SANDY GRAVEL (GM); ~ 40 % sand, mostly fine-medium grained, ~ 60% gravel (up to 1.5" in diameter), trace red brick fragments, sand matrix brown (10 YR 5/3) to pale brown (10 YR 6/3), dry.
						2.5 - 4.0 ft. SAND (SM); mostly fine - very fine grained, ~ 10% silt, pale brown (10 YR 6/3)
5	4565		5.0 - 10.0			4.0 - 20.0 ft. SANDY GRAVEL (GM); ~ 60% gravel (up to 2.0" in diameter), ~ 40% sand matrix mostly fine- medium grained, ~ 10 % silt, sand is light brownish gray (10 YR 6/2), dry.
10	4560		10.0 -15.0			@ 10.0 - 12.0 ft. gravel becomes very coarse (cobbles greater than 2.0 " in diameter), some cobble coatings have limonitic coloration at 11.0 ft., sand light brownish gray (10 YR 6/2) @ 12.0 - 14.0 ft. sand matrix is medium gray to dark grayish brown (10 YR 4/2), wet color, damp to moist and is well saturated at 14.0 ft.
15	4555		15.0 - 20.0			@ 15.0 - 20.0 ft. ~ 50% gravel becomes generally less coarse (up to 1.5" in diameter), ~ 50% sand, mostly medium grained, matrix sand is dark grayish brown (10 YR 4/2), wet color, saturated.
20	4550		20.0 - 24.5			20.0 - 22.0 ft. GRAVELLY SAND (SP); ~ 70 % sand, mostly fine- medium grained, matrix sand is dark grayish brown (10 YR 4/2) wet color.
						22.0 - 24.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 2.0 "in diameter), ~ 50% sand is mostly medium grained, dark gray (10 YR 4/1), wet color.
25	4545					24.0 - 24.5 ft. BEDROCK- BRUSHY BASIN MEMBER OF MORRISON FORMATION- CLAYSTONE; soft, plastic, light olive gray (5 Y 6/1), moist.
						Total Depth 24.5 ft.

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BOREHOLE LOG GJO01-GJAST-03

PROJECT <u>LM</u>	DATE DRILLED <u>10/15/2012</u>	BIT SIZE(S) (IN) <u>3.25</u>
LOCATION <u>GRAND JUNCTION, CO</u>	DRILLING COMPANY <u>S.M. Stoller</u>	CORE SIZE(S) (IN) <u>2.0</u>
SITE <u>GRAND JUNCTION</u>	DRILLING METHOD <u>Direct Push</u>	LOGGED BY <u>Goodknight, C.</u>
WELL NUMBER <u>GJO01-GJAST-03</u>	DRILL OPERATOR <u>Trevino, J</u>	WL (FT BGS) _____
NORTH COORD. (FT) <u>454101.11</u>	SAMPLING METHOD <u>Core Liner</u>	
EAST COORD. (FT) <u>1127998.86</u>	REMARKS <u>Bentonite chips placed in hole and some soil above water surface to</u>	
SURFACE ELEV. (FT NGVD) <u>4570.46</u>	<u>abandon hole. Samples collected for analysis every 1.0 ft. when core was available.</u>	
HOLE DEPTH (FT) <u>25.00</u>		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570		0 - 5.0			0 - 4.5 ft. SANDY GRAVEL (GM); brown (10 YR 5/3) @ 0 - 1.0 ft. ~ 50% gravel (up to 1.0" in diameter), ~ 50% sand, medium - fine grained, moist to damp. @ 2.0 - 4.5 ft. ~ 70% gravel (up to 2.0" in diameter), ~ 30% sand, medium grained, ~ 3.0 - 4.0 ft. base of fill, dry.
5	4565		5.0 - 10.0			4.5 - 5.0 ft. SAND (SM); mostly fine grained, ~ 10% silt, light yellowish-brown (10 YR 6/4). 5.0 - 24.8 ft. SANDY GRAVEL (GM); ~50 - 60% gravel (up to 2.0" in diameter). 40 - 50% sand, fine- medium grain , matrix light brownish gray (10 YR 6/2), dry.
10	4560		10.0 - 15.0			@ ~ 10.0 ft. ~ 50% gravel (up to 2.0" in diameter), ~ 50% sand medium - fine grained, brown (10 YR 5/3), wet color. @ ~ 13.5 ft. some limonitic coloration, ~ 13.5 - 14.0 ft. sediments become saturated.
15	4555		15.0 - 20.0			@ ~ 15.0 - 20.0 ft. same as previous sandy gravel, ~ 50 - 60 % gravel (up to 2.0" in diameter), 40 - 50% sand mostly medium grained, dark grayish brown (10 YR 4/2), wet color, saturated.
20	4550		20.0 - 25.0			@ ~ 20.0 - 20.5 ft. slightly more sandy up to ~ 70 % sand, mostly coarse grained, sub-rounded grains, dark grayish brown (10 YR 4/2), saturated.
25	4545					24.8 - 25.0 ft. BEDROCK- BRUSHY BASIN MEMBER OF MORRISON FORMATION- CLAYSTONE; weathered.
						Total Depth 25.0 ft.

GENERAL BOREHOLE WITH COLOR 4243-GJO01-GJAST-01-22.GPJ SHIP.GDT 12/23/16



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BOREHOLE LOG GJO01-GJAST-04

PROJECT <u>LM</u>	DATE DRILLED <u>10/16/2012</u>	BIT SIZE(S) (IN) <u>3.25</u>
LOCATION <u>GRAND JUNCTION, CO</u>	DRILLING COMPANY <u>S.M. Stoller</u>	CORE SIZE(S) (IN) <u>2.0</u>
SITE <u>GRAND JUNCTION</u>	DRILLING METHOD <u>Direct Push</u>	LOGGED BY <u>Goodknight, C.</u>
WELL NUMBER <u>GJO01-GJAST-04</u>	DRILL OPERATOR <u>Trevino, J</u>	WL (FT BGS) _____
NORTH COORD. (FT) <u>454113.64</u>	SAMPLING METHOD <u>Core Liner</u>	
EAST COORD. (FT) <u>1127885.24</u>	REMARKS <u>Refusal as 7.0 ft. after three borehole attempts. Soil material filled into</u>	
SURFACE ELEV. (FT NGVD) <u>4572.06</u>	<u>holes to abandon holes. Samples collected for analysis every 1.0 ft. when core was</u>	
HOLE DEPTH (FT) <u>7.00</u>	<u>available.</u>	

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
						0 - 2.0 ft. SANDY GRAVEL (GM); ~ 50 % gravel (up to 0.75" in diameter), ~ 50% sand mainly fine grained, fill to ~ 3.0 ft., light yellowish brown (10 YR 6/4).
4570			0 - 5.0			2.0 - 5.0 ft GRAVELLY SAND (SP); ~ 70% sand, mostly medium - fine grained, ~ 30% gravel (up to 1.5" in diameter), white calcite mottles throughout below 3.0 ft., light yellowish brown (10YR 6/4), dry.
5			5.0 - 7.0			5.0 - 7.0 ft. SANDY GRAVEL (GM); ~ 50 - 60% gravel (up to 2.0" in diameter), matrix sand mostly fine grained, dark grayish brown (10 YR 4/2).
4565						Total Depth 7.0 ft.
10						
4560						

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BOREHOLE LOG GJO01-GJAST-05

PROJECT <u>LM</u>	DATE DRILLED <u>10/16/2012</u>	BIT SIZE(S) (IN) <u>3.25</u>
LOCATION <u>GRAND JUNCTION, CO</u>	DRILLING COMPANY <u>S.M. Stoller</u>	CORE SIZE(S) (IN) <u>2.0</u>
SITE <u>GRAND JUNCTION</u>	DRILLING METHOD <u>Direct Push</u>	LOGGED BY <u>Goodknight, C.</u>
WELL NUMBER <u>GJO01-GJAST-05</u>	DRILL OPERATOR <u>Trevino, J</u>	WL (FT BGS) _____
NORTH COORD. (FT) <u>454136.16</u>	SAMPLING METHOD <u>Core Liner</u>	
EAST COORD. (FT) <u>1127909.12</u>	REMARKS <u>Refusal at 22.5 ft. after three borehole attempts. Bentonite chips placed</u>	
SURFACE ELEV. (FT NGVD) <u>4569.96</u>	<u>in holes and some soil above the water surface to abandon holes. Samples collected for</u>	
HOLE DEPTH (FT) <u>22.50</u>	<u>analysis every 1.0 ft. when core was available.</u>	

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 2.0 ft. SANDY GRAVEL (GM); ~ 50 % gravel (up to 1.5" in diameter), ~ 50% sand matrix mostly fine - medium grained, fill to ~ 2.0 ft, brown (10 YR 5/3), dry.
						2.0 - 4.5 ft. SAND (SM); sand mostly fine grained, ~ 10 - 20% silt, yellowish-brown (10 YR 5/4).
5	4565		5.0 - 10.0			4.5 - 22.5 ft. SANDY GRAVEL (GM); as above in 0 - 2.0 ft. gravel (up to 2.0" in diameter), sand matrix is mostly pale brown (10 YR 6/3), dry.
10	4560		10.0 - 15.0			@ 11.5 ft. sand matrix is brown (10 YR 5/3), moist color.
						@ ~ 13.0 ft. some limonitic coloration, reddish yellow (7.5 YR 6/6), sediments become saturated at 14.0 ft.
15	4555		15.0 - 20.0			@ 16.5 - 18.0 ft. sand is more coarse grained, a "salt and pepper" sand, saturated.
20	4550		20.0 - 22.5			@ 22.5 ft. rod refusal
						Total Depth 22.5 ft.

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BOREHOLE LOG GJO01-GJAST-06

PROJECT <u>LM</u>	DATE DRILLED <u>10/16/2012</u>	BIT SIZE(S) (IN) <u>3.25</u>
LOCATION <u>GRAND JUNCTION, CO</u>	DRILLING COMPANY <u>S.M. Stoller</u>	CORE SIZE(S) (IN) <u>2.0</u>
SITE <u>GRAND JUNCTION</u>	DRILLING METHOD <u>Direct Push</u>	LOGGED BY <u>Goodknight, C.</u>
WELL NUMBER <u>GJO01-GJAST-06</u>	DRILL OPERATOR <u>Trevino, J</u>	WL (FT BGS) _____
NORTH COORD. (FT) <u>454163.97</u>	SAMPLING METHOD <u>Core Liner</u>	
EAST COORD. (FT) <u>1127924.41</u>	REMARKS <u>One section of 3.25 in. OD drive steel and a cutting shoe were left down</u>	
SURFACE ELEV. (FT NGVD) <u>4570.50</u>	<u>hole in the second attempt for this borehole. Refusal at 20.0 ft. after two borehole</u>	
HOLE DEPTH (FT) <u>20.00</u>	<u>attempts. Samples collected for analysis every 1.0 ft. when core was available.</u>	

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570		0 - 5.0			0 - 1.5 ft. SANDY GRAVEL (GM); ~ 50% gravel, trace red brick fragments, ~ 50 % sand matrix, base of fill ~ 1.5 ft., brown (10 YR 5/3). 1.5 - 4.5 ft. SAND (SM); sand mostly fine grained, trace pebbles, ~ 10 - 20 % silt, compact from 1.5 - 3.0 ft., brown (10 YR 5/4).
5	4565		5.0 - 10.0			4.5 - 20.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 2.0" in diameter), ~ 40% sand matrix mostly fine grained, ~ 10% silt, brown (7.5 YR 5/3), dry.
10	4560		10.0 - 15.0			@ ~ 10.0 ft sand matrix is brownish gray (10 YR 6/2). @ ~ 11.0 - 12.5 ft. some limonitic coloration, brownish yellow (10YR 6/8), moist at ~ 12.0 ft. @ 12.5 ft. sandy gravel, as above. @ 14.0 ft. saturated.
15	4555		15.0 - 20.0			@ ~ 16.0 - 17.0 ft. sand is more coarse grained and has "salt and pepper" appearance, saturated.
20	4550					@ 20.0 ft. rod refusal Total Depth 20.0 ft.

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BOREHOLE LOG GJO01-GJAST-07

PROJECT LM	DATE DRILLED 10/16/2012 to 10/17/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-07	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454231.19	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127749.84	REMARKS Pushed down to 15.0 ft. at end of 10/16. Finished borehole at 0840 on 10/17. Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4572.09		
HOLE DEPTH (FT) 25.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
4570			0 - 5.0			0 - 5.5 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.5" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, trace roots to ~ 2.0 ft., very pale brown (10 YR 7/4). @ ~ 3.0 ft. slight increase in clasts. @ ~ 4.5 ft. base of fill.
5			5.0 - 10.0			5.5 - 9.5 ft. GRAVELLY SAND (SP-SM); ~ 60% (3.0 ft) of recovery, ~ 15% gravel (up to 1.0" in diameter), ~ 75% sand mostly fine grained, ~ 10% silt, strong brown (7.5 YR 5/6). @ ~ 8.0 ft. sediments becoming moist.
10			10.0 - 15.0			9.5 - 20.0 ft. SANDY GRAVEL (GM); ~ 50% (5.0 ft.) recovery, ~ 50% gravel (up to 2.0" in diameter), ~ 40% sand mostly fine grained, ~10% silt. @ 11.0 - 12.0 ft. matrix sand is brown (7.5 YR 5/4), moist color. @ 12.5 - 13.5 ft. sand matrix is light yellowish brown (10 YR 6/4), wet color, sediments are saturated at ~13.0 ft. @ 13.5 - 15.0 ft. sand matrix is dark grayish brown (10 YR 4/2). @ 15.0 - 20.0 ft. sand matrix is very dark grayish brown (10 YR 3/2), wet color, saturated.
15			15.0 - 20.0			
20			20.0 - 25.0			20.0 - 21.0 ft. SAND (SP); ~ 50% (2.5 ft.) recovery, sand is mostly medium grained and has "salt and pepper" appearance, brown (7.5 YR 4/2), wet color. 21.0 - 24.7 ft. SANDY GRAVEL (GM); as above, ~ 50 % gravel (up to 1.5" in diameter), ~ 40% sand mostly medium - fine grained, ~ 10% silt, saturated.
25						24.7 - 25.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered claystone.
						Total Depth 25.0 ft.
4545						



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BOREHOLE LOG GJO01-GJAST-08

PROJECT LM	DATE DRILLED 10/17/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-08	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454256.88	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127774.36	REMARKS Three sections of 3.25 in. OD drive steel and a cutting shoe were left	
SURFACE ELEV. (FT NGVD) 4570.28	down hole in the second attempt for this borehole. Samples collected for analysis every	
HOLE DEPTH (FT) 25.00	1.0 ft. when core was available.	

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570		0 - 5.0			0 - 15.0 ft. SANDY GRAVEL (GM); ~ 70% recovery, ~ 50% gravel (up to 1.5" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, trace roots down to ~ 1.5 ft., fill down to 2.0 ft., very pale brown (10 YR 7/4), dry.
5	4565		5.0 - 10.0			@ ~ 7.0 ft. ~ 60 % gravel (up to 2.0" in diameter), ~ 30% sand, ~ 10% silt, pale brown (10 YR 6/3), dry.
10	4560		10.0 - 15.0			@ ~ 12.0 ft. less than 2% concentrations of white calcite crystals, ~ 12.5 - 13.0 ft. some limonitic coloration, brownish yellow (10 YR 6/6), damp to moist by 12.0 ft. @ ~ 13.0 - 15.0 ft. sand matrix is brown (10 YR 5/3), wet color, saturated at ~ 13.5 ft.
15	4555		15.0 - 20.0			15.0 - 16.0 ft. SAND (SP); sand mostly medium - fine grained, brownish yellow (10 YR 4/2), wet color. 16.0 - 20.0 ft. SANDY GRAVEL (GM); ~ 40% recovery, ~ 50 - 60% gravel (up to 2.0" in diameter). ~ 30 - 40% sand mostly fine grained, ~ 10% silt, dark grayish brown (10 YR 4/2), wet color, saturated.
20	4550		20.0 - 25.0			20.0 - 21.0 ft. SAND (SP); sand mostly medium - coarse grained "salt and pepper" appearance, dark gray (10 YR 4/1), wet color. 21.0 - 24.0 ft. SANDY GRAVEL (GM); as above, ~ 50% recovery, ~ 50% gravel (up to 1.5" in diameter), ~ 40% sand mostly medium - fine grained, ~ 10% silt, saturated.
25	4545					24.0 - 25.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION- CLAYSTONE; weathered claystone, light olive gray (5 Y 6/1).
						Total Depth 25.0 ft.

GENERAL BOREHOLE WITH COLOR 4243-GJO01-GJAST-01-22-GPJ-SHIP-GDT 12/23/16



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BOREHOLE LOG GJO01-GJAST-09						
PROJECT		LM		DATE DRILLED		10/17/2012
LOCATION		GRAND JUNCTION, CO		DRILLING COMPANY		S.M. Stoller
SITE		GRAND JUNCTION		DRILLING METHOD		Direct Push
WELL NUMBER		GJO01-GJAST-09		DRILL OPERATOR		Trevino, J
NORTH COORD. (FT)		454282.39		SAMPLING METHOD		Core Liner
EAST COORD. (FT)		1127804.87		REMARKS		
SURFACE ELEV. (FT NGVD)		4571.31		Refusal at 6.5 ft. after three attempts. One section of drive steel and a cutting shoe left down hole in the second attempt. Refusal at 20.0 ft. after two attempts.		
HOLE DEPTH (FT)		6.50		Samples collected for analysis every 1.0 ft. when core was available.		
DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
4570			0 - 5.0			0 - 4.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.0" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, roots down to ~ 1.0 ft., brown (10 YR 5/3), dry.
5						4.0 - 5.0 ft. SAND (SP); sand mostly fine grained, pale brown (10 YR 6/3), dry.
4565			5.0 - 6.5			5.0 - 6.5 ft. SANDY GRAVEL (GM); as above.
						Total Depth 6.5 ft.
10						
4560						
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BOREHOLE LOG GJO01-GJAST-10

PROJECT LM	DATE DRILLED 10/17/2012 to 10/23/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-10	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454446.57	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127564.72	REMARKS Refusal at 4.0 ft. after three attempts on 10/17. On 10/23 a successful attempt ~15.0 ft. NE of original location. Samples from 0.0 -4.0 ft. are from original hole (GJAST-10A). Samples collected for analysis ever 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4569.67		
HOLE DEPTH (FT) 25.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
5	4565		0 -5.0			0 - 22.0 ft. SANDY GRAVEL (GM); ~ 70% recovery, ~ 50% gravel (up to 1.0" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, fill down to ~ 4.5 ft., very pale brown (10 YR 7/4). @ ~ 5.0 ft. gravel increases to ~ 50 - 60% (up to 1.5" in diameter), ~ 35 - 40 % sand mostly fine - very fine grained, pale brown (10 YR 6/3), dry. @ ~ 7.0 - 8.0 ft. mottling with white calcareous (calcite) clasts. @ ~ 8.0 - 9.0 ft. some limonitic coloration, ~ 9.0 ft. damp. @ ~ 11.0 ft. sand matrix is light brownish gray (10 YR 6/2), damp color. @ ~ 13.0 ft. sediments are saturated. @ ~ 14.0 ft. sand matrix is dark grayish brown (10 YR 4/2), wet color.
10	4560		5.0 - 10.0			
15	4555		10.0 - 15.0			
20	4550		15.0 - 20.0			
25	4545		20.0 - 25.0			22.0 - 25.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered silty claystone, pale brown (5 YR 5/2) to 23.0 ft., then claystone is light greenish gray (5 GY 8/1), and dark reddish brown (10 R 3/4) below.
						Total Depth 25.0 ft.

GENERAL BOREHOLE WITH COLOR 4243-GJO01 GJAST-01-22 GP-J SHIP GDT 12/23/16

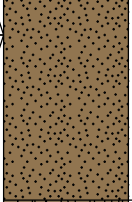
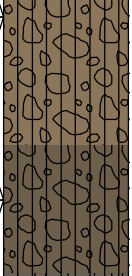
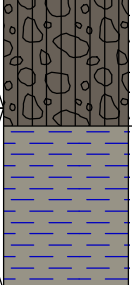


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BOREHOLE LOG GJO01-GJAST-11

PROJECT LM	DATE DRILLED 10/17/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-11	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454451.43	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127595.63	REMARKS Bentonite chips placed in hole and some soil above water surface to	
SURFACE ELEV. (FT NGVD) 4569.89	abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
HOLE DEPTH (FT) 25.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 -5.0			0 - 1.5 ft GRAVELLY SAND (SP); ~ 20% gravel (up to 0.75" in diameter), ~ 75% sand mostly fine - medium grained, ~ 5% silt, roots to ~ 1.0 ft., pale brown (10 YR 6/3).
			5.0 - 10.0			1.5 - 4.0 ft. SILTY SAND (SM); ~ 50% sand mostly fine grained, ~ 50% silt, somewhat compacted, brown (10 YR 5/3), dry.
5	4565		10.0 - 15.0			4.0 - 9.5 ft. SAND (SP) to SILTY SAND (SM); sand mostly fine - very fine grained, trace mottling and trace roots down to ~ 7.0 ft., somewhat compact in some horizons, brown (10 Y 5/3) to yellowish brown (10 YR 5/4).
10	4560		15.0 - 20.0			9.5 - 20.5 ft. SANDY GRAVEL (GM); ~ 30% recovery, ~ 50% gravel (up to 1.0" in diameter), ~ 40% sand, mostly fine - medium grained, ~ 10 % silt, brown (10 YR 5/3), dry.
15	4555		20.0 - 25.0			@ ~ 13.5 ft. sand matrix is dark grayish brown (10 YR 4/2), wet color, saturated. @ ~17.0 ft. matrix sand is dark gray (10 YR 4/1), saturated.
20	4550					20.5 - 25.0 ft. BEDROCK- BRUSHY BASIN MEMBER OF THE MORRISON FORMATION- CLAYSTONE; weathered claystone to 22.0 ft., then soft unweathered claystone below, sticky, moderately plastic, light olive gray (5 Y 6/1) to brownish gray (5 Y 4/1).
25	4545					Total Depth 25.0 ft.



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BOREHOLE LOG GJO01-GJAST-12

PROJECT LM	DATE DRILLED 10/17/2012 to 10/18/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-12	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454471.85	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127626.85	REMARKS Pushed down to 13.0 ft. at end of 10/17. Total depth of 20.0 ft. approved w/o tagging bedrock, which is likely less than 1.0 ft. more in depth. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4569.63		
HOLE DEPTH (FT) 20.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 2.0 ft. GRAVELLY SAND (SP); ~ 20% gravel (up to 0.75" in diameter), ~ 75% sand mostly fine grained, ~ 5% silt, roots up to ~ 1.0 ft., yellowish brown (10 YR 5/4). 2.0 - 3.0 ft. SILTY SAND (SM); brown (10 YR 5/3), dry. 3.0 - 4.0 ft. SAND (SP); powder, mostly very fine grained, light yellowish brown (10 YR 6/4) @ ~ 4.0 ft. base of fill material. 4.0 - 5.0 ft. SANDY SILT; somewhat compact, some roots, light yellowish brown (10 YR 6/4). 5.0 - 6.0 ft. SAND (SP); powdery, mostly fine grained, pale brown (10 YR 6/3). 6.0 - 7.0 ft. SANDY SILT; somewhat compact, some mottling, trace roots to ~ 7.0 ft., yellowish brown (10 YR 5/4). 7.0 - 20.0 ft. SANDY GRAVEL (GM); ~ 50 - 60% gravel (up to 1.5" in diameter), ~ 30 - 40% sand mostly fine - medium grained, ~ 10% silt, pale brown (10 YR 6/3), dry.
5	4565					
10	4560		5.0 - 10.0			
15	4555		10.0 - 15.0			@ ~ 13.5 ft. sediments are saturated. @ 14.0 sand matrix is brown (10 YR 5/3), wet color.
20	4550		15.0 - 20.0			@ ~ 17.0 ft. sand matrix is mostly medium grained with some coarse grains, very dark grayish brown (10 YR 3/2), wet color.
						Total Depth 20.0 ft.

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BOREHOLE LOG GJO01-GJAST-13

PROJECT LM	DATE DRILLED 10/18/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-13	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454597.68	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127436.08	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4569.08		
HOLE DEPTH (FT) 24.50		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 1.0 ft. SANDY SILT (ML); trace roots, trace small pebbles, brownish yellow (10 YR 6/6). 1.0 - 7.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.5" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, pale brown (10 YR 6/3), dry. @ ~ 4.5 ft. base of fill material.
5	4565		5.0 - 10.0			7.0 - 10.5 ft. GRAVELLY SAND (SP); ~ 60 - 70% sand mostly fin grained, ~ 25% gravel (up to 1.0" in diameter), ~ 10% silt, ~ 9.0 ft. limonitic coloration, brownish yellow (10 YR 6/8), damp to moist by 9.5 ft.
10	4560		10.0 - 15.0			10.5 - 14.5 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.0" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, yellowish brown (10 YR 5/4) to dark grayish brown (10 YR 4/2), moist colors. @ ~ 14.0 ft. sediments are saturated.
15	4555		15.0 - 20.0			14.5 - 15.0 ft. GRAVELLY SAND (SP); ~ 30% gravel (up to 0.75" in diameter, ~ 70% sand medium to coarse grained, "salt and pepper" appearance, dark grayish brown (10 YR 4/2). 15.0 - 23.5 ft. SANDY GRAVEL (GM); ~ 50 - 60% gravel (up to 1.5" in diameter), ~30 - 40% sand mostly fine - medium grained, ~ 10% silt, dark grayish brown (10 YR 4/2), saturated. @ 20.0 - 22.0 ft. gravel increases to ~ 70%.
20	4550		20.0 - 24.5			23.5 - 24.5 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered claystone, soft, grayish red (10 R 4/2). Total Depth 24.5
25	4545					
	4540					

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BOREHOLE LOG GJO01-GJAST-14

PROJECT LM	DATE DRILLED 10/18/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-14	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454610.35	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127482.64	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4568.34		
HOLE DEPTH (FT) 24.70		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 1.0 ft. SILT (ML); powdery, light yellowish brown (10 YR 6/4), dry.
						1.0 - 3.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.5" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, pale brown (10 YR 6/3), dry.
						@ ~ 3.0 ft. base of fill material.
5	4565					3.0 - 5.0 ft. SILT (SM); trace very fine grained sand, some mottling, , brown (10 YR 4/3), damp color, damp at ~ 4.0 ft.
			5.0 - 10.0			5.0 - 11.0 ft. SILTY SAND (SM); sand increased in size downward from very fine grained to fine grained, ~ 9.0 ft. trace small pebbles, brown (10 YR 4/3), moist color, moisture increases to 9.0 ft., very soft probing.
						@ ~ 9.0 ft. sediments become heavily saturated.
10	4560					
			10.0 - 15.0			11.0 - 20.0 ft. SANDY GRAVEL (GM); ~ 50 - 60% gravel (up to 1.5" in diameter), ~ 30 - 40 % sand mostly fine - medium grained, ~ 10% silt, dark grayish brown (10 YR 4/2), saturated.
						@ ~ 17.0 ft. sand matrix becomes medium grained.
15	4555					
			15.0 - 20.0			
						20.0 - 20.5 ft. SAND (SP); mostly medium - coarse grained , " salt and pepper" appearance, dark gray (10 YR 4/1).
20	4550					20.5 - 21.7 ft. SANDY GRAVEL (GM); ~ 60 - 70% gravel, ~ 30% sand, ~ 10% silt, dark grayish brown (10 YR 4/2).
			20.0 - 24.7			21.7 - 24.7 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION- CLAYSTONE; weathered claystone. soft, light olive gray (5 Y 6/1) to grayish red (10 R 4/2), wet to damp.
25	4545					Total Depth 24.7 ft.
	4540					



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BOREHOLE LOG GJO01-GJAST-15

PROJECT <u>LM</u>	DATE DRILLED <u>10/18/2012</u>	BIT SIZE(S) (IN) <u>3.25</u>
LOCATION <u>GRAND JUNCTION, CO</u>	DRILLING COMPANY <u>S.M. Stoller</u>	CORE SIZE(S) (IN) <u>2.0</u>
SITE <u>GRAND JUNCTION</u>	DRILLING METHOD <u>Direct Push</u>	LOGGED BY <u>Goodknight, C.</u>
WELL NUMBER <u>GJO01-GJAST-15</u>	DRILL OPERATOR <u>Trevino, J</u>	WL (FT BGS) _____
NORTH COORD. (FT) <u>454616.85</u>	SAMPLING METHOD <u>Core Liner</u>	
EAST COORD. (FT) <u>1127538.47</u>	REMARKS <u>Bentonite chips placed in hole and some soil above water surface to</u>	
SURFACE ELEV. (FT NGVD) <u>4568.95</u>	<u>abandon hole. Samples collected for analysis every 1.0 ft. when core was available.</u>	
HOLE DEPTH (FT) <u>24.00</u>		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 2.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 0.75" in diameter), ~ 40 % sand mostly fine grained, brown (10 YR 5/3).
						2.0 - 4.0 ft. SILT (ML); some mottling, trace roots, brown (10 YR 5/3), slightly damp. @ ~ 2.5 ft. base of fill material.
5	4565					4.0 - 6.0 ft. SAND (SP); mostly fine grained, pale brown (10 YR 6/3), dry.
			5.0 - 10.0			6.0 - 6.5 ft. SILT (ML); mottled, trace roots, yellowish brown (10 YR 5/4).
						6.5 - 9.0 ft. SAND (SP); mostly fine grained, ~ 5% silt, yellowish brown (10 YR 5/4), dry.
						@ ~ 8.5 ft. sand becomes coarser, medium grained, powdery.
10	4560					9.0 - 15.0 ft. SILT (ML); brown (10 YR 5/3), damp color, moist.
			10.0 - 15.0			@ 10.0 ft. sediments become saturated, wet color is brown 7.5 YR 4/4 and very dark grayish brown (10 YR 3/2).
						@ 11.0 - 13.0 ft. presence of iron staining in streaks, dark reddish brown (5 YR 3/4).
						@ 13.0 - 15.0 ft. dark coloration maybe organic related, slight sulfur or reduced smell, trace roots, very dark gray (2.5 Y 3/1), saturated and goopy.
15	4555					15.0 - 20.5 ft. SANDY GRAVEL (GM); ~ 30% recovery, 3.0 - 6.0" layer of sand, mostly medium grained, at top of "salt and pepper" sand, darkish grayish brown (10 YR 4/2).
			15.0 - 20.0			
20	4550					20.5 - 24.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered claystone, soft, light olive gray (5 Y 6/1), wet to damp.
			20.0 - 24.0			
						Total Depth 24.0 ft.
25	4545					
	4540					



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BOREHOLE LOG GJO01-GJAST-16

PROJECT LM	DATE DRILLED 10/18/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-16	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454648.31	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127435.66	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4567.65		
HOLE DEPTH (FT) 25.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0		[Pattern: Small dots]	0 - 2.0 ft. GRAVELLY SAND (SP); sand is fine grained, ~ 15% gravel (up to 1.0" in diameter), some silt, trace roots, very pale brown (10 YR 8/4), dry.
5	4565		5.0 - 10.0		[Pattern: Large circles]	2.0 - 21.0 ft. SANDY GRAVEL (GM); ~ 45% recovery, ~ 50% gravel (up to 2.0" in diameter), ~ 40% sand mostly fine grained, ~ 10% silt, very pale brown (10 YR 7/4), dry. @ ~ 9.0 ft. some limonitic coloration (9.0 - 10.0 ft.), sand matrix is yellowish brown (10 YR 5/4), slightly damp at 10.0 ft. @ ~ 12.0 ft. sand matrix is very dark grayish brown (10 YR 3/2), moist below 12.0 ft. @ ~ 13.5 - 14.0 ft. limonitic color underline by black organic color, saturated. @ 16.0 - 17.0 ft. sand has "salt and pepper" appearance.
15	4555		10.0 - 15.0		[Pattern: Large circles]	
20	4550		15.0 - 20.0		[Pattern: Large circles]	
25	4545		20.0 - 25.0		[Pattern: Horizontal lines]	21.0 - 25.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered claystone, soft, light olive gray (5 Y 6/1) to grayish red (10 R 4/2), wet to damp.
						Total Depth 25.0 ft.

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BOREHOLE LOG GJO01-GJAST-17

PROJECT LM	DATE DRILLED 10/22/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-17	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454700.05	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127359.99	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4570.23		
HOLE DEPTH (FT) 24.50		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570					0 - 2.0 ft. GRAVELLY SAND (SP); ~ 80% sand mostly fine - very fine grained, ~ 15% gravel (< 0.5" in diameter), ~ 5 - 10% silt, light yellowish-brown (10 YR 6/4).
			0 - 5.0			2.0 - 10.5 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.5" in diameter), ~ 35% sand mostly fine grained, ~ 15% silt, light gray (10 YR 7/2), dry.
5	4565					@ 5.0 ft. hard.
			5.0 - 10.0			@ ~ 8.0 ft. base of fill. @ ~ 9.0 ft. trace limonitic coloration, brown (10 YR 5/3), damp color, damp by 9.5 ft.
10	4560					10.5 - 11.5 ft. GRAVELLY SAND (SP); ~ 60% sand mostly fine grained, ~ 30 - 40% gravel (up to 0.5" in diameter), brown (10 yr 5/4).
			10.0 - 15.0			11.5 - 20.0 ft. SANDY GRAVEL (GM); ~ 50% recovery, ~ 60 % gravel (up to 2.0" in diameter), ~ 30% sand mostly fine grained, ~ 10% silt, dark grayish brown (10 YR 4/2). @ 13.0 ft. sediments are moist.
15	4555					@ ~ 14.5 ft. sediments are saturated.
			15.0 - 20.0			
20	4550					20.0 - 21.5 ft. GRAVELLY SAND (SP); ~ 70% sand mostly fine grained, ~ 25 % gravel (up to 0.5" in diameter), ~ 5% silt., dark grayish brown (10 YR 4/2), saturated.
			20.0 - 24.5			21.5 - 24.0 ft. SANDY GRAVEL (GM); ~ 50% recovery, ~ 50 - 60% gravel (up to 2.0" in diameter), ~ 40% sand mostly medium grained, ~ 5 - 10% silt, dark grayish brown (10 YR 4/2), saturated.
25	4545					24.0 - 24.5 ft. BEDROCK- BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered claystone, soft, greenish gray (5 G 6/1), moist.
						Total Depth 24.5 ft.

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BOREHOLE LOG GJO01-GJAST-18

PROJECT LM	DATE DRILLED 10/22/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-18	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454723.12	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127403.94	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4569.48		
HOLE DEPTH (FT) 25.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 1.5 ft. SANDY SILT (ML) ; ~ 20% sand very fine grained, trace roots down to 1.5 ft., very pale brown (10 YR 7/4).
5	4565		5.0 - 10.0			1.5 - 15.0 ft. SANDY GRAVEL (GM) ; ~ 50% gravel (up to 1.5" in diameter), ~ 35% sand mostly fine grained, ~ 15% silt, very pale brown (10YR 7/3), dry. @ ~ 5.0 ft. base of fill material. @ ~ 6.5 ft. sand matrix is pale brown (10 YR 6/3). @ ~ 7.5 - 10 ft. some limonitic coloration, cobbles increase in size (up to 2.0" in diameter), yellowish brown (10 YR 5/4). @ 9.0 ft. sediments are damp. @ ~ 10.0 - 12.0 ft. sandy gravel, same as above. @ ~ 12.0 ft. sand matrix is light yellowish brown (10 YR 6/4), moist color. @ 13.5 sediments are saturated. ~ 14.0 - 15.0 ft. sand matrix is very dark grayish brown (10 YR 3/2), wet color.
10	4560		10.0 - 15.0			15.0 - 16.0 ft. SAND (SP) ; sand mostly medium grained, "salt and pepper" appearance, dark grayish brown (10 YR 4/2), wet color.
15	4555		15.0 - 20.0			16.0 - 21.7 ft. SANDY GRAVEL (GM) ; ~ 50 - 60% gravel (up to 1.5" in diameter), ~ 40% sand mostly medium grained, ~ 10% silt, dark grayish brown (10YR 4/2), wet color.
20	4550		20.0 - 25.0			21.7 - 22.5 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - SILTSTONE ; weathered siltstone to very fine grained sandstone, yellowish gray (5Y 7/2), damp color.
25	4545					22.5 - 25.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE ; grayish red (10 R 4/2), damp color.
						Total Depth 25.0 ft.

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BOREHOLE LOG GJO01-GJAST-19

PROJECT LM	DATE DRILLED 10/22/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-19	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454740.02	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127436.55	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4569.95		
HOLE DEPTH (FT) 22.30		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 1.5 ft. SANDY SILT (ML); ~ 20% sand very fine grained, trace roots down to ~ 1.5 ft., brownish yellow (10 YR 6/6), dry. 1.5 - 3.5 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.5" in diameter), ~ 35% sand mostly fine grained, ~ 10 -15% silt, dry 3.5 - 4.5 ft. SAND (SP); very fine grained, light yellowish brown (10 YR 6/4), dry. @ ~ 4.5 ft. base of fill material. 4.5 - 7.5 ft. SILT (ML); trace roots (4.5 - 6.0 ft.), mottling (~ 5.0 - 6.0 ft.), yellowish brown (10 YR 5/4), dry. @ ~ 5.0 ft. sediments are damp, light brownish gray (10 YR 5/4) and pale brown (10 YR 6/3), damp colors. @ 6.0 - 9.0 ft. limonitic coloration/staining. 7.5 - 9.5 ft. SANDY SILT to SILTY SAND (ML to SP); yellowish brown (10 YR 5/4). @ 9.0 - 9.5 ft. trace roots, stems, and mottling. 9.5 - 21.8 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.0" in diameter), ~ 40% sand mostly fine grained, brown (10 YR 5/3), dry color. @ 11.0 - 12.0 ft. some limonitic coloration, damp to moist. @ 12.5 - 13.0 ft. sediments are saturated. @ ~ 19.0 - 21.8 ft. sand matrix is dark grayish brown (10 YR 4/2), saturated. 21.8 - 22.3 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE; weathered claystone, soft, light gray (5 Y 6/1) to greenish gray (5 GY 6/1). Total Depth 22.3 ft.

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BOREHOLE LOG GJO01-GJAST-20

PROJECT LM	DATE DRILLED 10/22/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-20	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454797.19	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127378.50	REMARKS Bentonite chips placed in hole and some soil above water surface to abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
SURFACE ELEV. (FT NGVD) 4570.37		
HOLE DEPTH (FT) 21.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
	4570					0 - 1.5 ft. SILT (ML); ~ 10% sand very fine grained, trace pebbles, powdery, pale brown (10 YR 6/3), dry.
			0 - 5.0			1.5 - 9.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.5" in diameter), ~ 35% sand mostly fine grained, ~ 15% silt, light yellowish brown (10 YR 6/4), dry. @ ~ 4.5 ft. base of fill material.
5	4565		5.0 - 10.0			@ 7.5 - 9.0 ft. some limonitic coloration, pale brown (10 YR 6/3), dry.
10	4560		10.0 - 15.0			9.0 - 10.0 ft. GRAVELLY SAND (SP); ~ 60% sand mostly fine - very fine grained, ~ 25% gravel (up to 1.0" in diameter), brown (10 YR 5/3), damp color, moist. 10.0 - 20.7 ft. SANDY GRAVEL (GM); ~ 60% recovery, ~ 50 - 60% gravel (up to 2.0" in diameter), ~ 35% sand mostly fine grained, ~ 10% silt, brown (10 YR 5/3), damp. @ ~ 12.5 ft. sediments are saturated, dark gray (10 YR 4/1), wet color.
15	4555		15.0 - 20.0			@ 18.0 - 19.0 ft. sand matrix has "salt and pepper" appearance.
20	4550		20.0 - 21.0			20.7 - 21.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - SANDSTONE; weathered sandstone, fine grained friable, yellowish gray (5 Y 8/1), moist color.
						Total Depth 21.0 ft.

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BOREHOLE LOG GJO01-GJAST-21

PROJECT LM	DATE DRILLED 10/23/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-21	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454859.67	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127309.42	REMARKS Refusal at 21.5 ft. in hard siltstone of BRUSHY BASIN MEMBER.	
SURFACE ELEV. (FT NGVD) 4568.27	Bentonite chips placed in hole and some soil above water surface to abandon hole.	
HOLE DEPTH (FT) 21.50	Samples collected for analysis every 1.0 ft. when core was available.	

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 2.0 ft. GRAVELLY SILT (ML) ; ~ 10% gravel (up to 1.0" in diameter), trace roots, very pale brown (10 YR 7/4), dry.
	4565					2.0 - 4.0 ft. SANDY GRAVEL (GM) ; ~ 50% gravel (up to 1.5" in diameter), ~ 35 - 40% sand mostly fine - very fine grained, ~ 10 - 15% silt, pale brown (10 YR 7/3).
5						@ ~ 4.0 ft. base of fill material.
						4.0 - 5.5 ft. SILT (ML) ; trace roots to 5.0 ft., yellowish brown (10 YR 5/4).
	4560		5.0 - 10.0			5.5 - 21.2 ft. SANDY GRAVEL (GM) ; ~ 70% recovery, ~ 50% gravel (up to 1.5" in diameter), ~ 35 - 40% sand mostly fine grained, ~ 10 - 15% silt, brown (10 YR 5/3), dry.
10						@ ~ 10.0 ft sand matrix is light gray (10 YR 7/2), damp by 12.0 ft.
	4555		10.0 - 15.0			@ 13.0 ft. sediments become saturated, dark grayish brown (10 YR 4/2), wet color.
15						
	4550		15.0 - 20.0			
20						
	4545		20.0 - 21.5			21.2 - 21.5 ft. BEDROCK - BRUSHY BASIN MEMBER OF THE MORRISON FORMATION - CLAYSTONE ; weathered claystone, soft, mottling of dark reddish brown (10 R 3/4) and light greenish gray (5 GY 8/1), some siltstone on bottom that was hard - refusal.
						Total Depth 21.5 ft.

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BOREHOLE LOG GJO01-GJAST-22

PROJECT LM	DATE DRILLED 10/23/2012	BIT SIZE(S) (IN) 3.25
LOCATION GRAND JUNCTION, CO	DRILLING COMPANY S.M. Stoller	CORE SIZE(S) (IN) 2.0
SITE GRAND JUNCTION	DRILLING METHOD Direct Push	LOGGED BY Goodknight, C.
WELL NUMBER GJO01-GJAST-22	DRILL OPERATOR Trevino, J	WL (FT BGS)
NORTH COORD. (FT) 454948.11	SAMPLING METHOD Core Liner	
EAST COORD. (FT) 1127235.41	REMARKS Bentonite chips placed in hole and some soil above water surface to	
SURFACE ELEV. (FT NGVD) 4568.74	abandon hole. Samples collected for analysis every 1.0 ft. when core was available.	
HOLE DEPTH (FT) 23.00		

DEPTH (FT BGL)	ELEV. (FT NGVD)	BLOW COUNTS	SAMPLE INTERVAL(FT.)	EXTENT	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
			0 - 5.0			0 - 1.0 ft. SILT (ML); trace roots, very pale brown (10 YR 7/4).
						1.0 - 2.0 ft. SANDY GRAVEL (GM); ~ 50% gravel (up to 1.0" in diameter), ~ 35% sand mostly very fine grained, ~ 15% silt, very pale brown (10 YR 7/3), dry.
						2.0 - 4.5 ft. SANDY SILT (ML); ~ 75% silt, sand is very fine grained, somewhat compacted in some horizons, yellowish brown (10 YR 5/4), dry.
5	4565					@ ~ 4.5 ft. base of fill materials.
			5.0 - 10.0			4.5 - 8.0 ft. SILTY SAND to SAND (SM to SP); silt grading down to sand ~ 7.0 ft., sand mostly fine - very fine grained, yellowish brown (10 YR 5/4), dry.
						@ ~ 4.5 - 5.0 ft. some mottling.
						@ 6.0 - 7.0 ft. sand mostly fine grained, trace roots, brown (10 YR 5/3) to yellowish brown (10 YR 5/4).
	4560					8.0 - 9.0 ft. GRAVELLY SAND (SP); ~ 80% sand mostly medium grained, ~ 20% gravel (up to 0.75" in diameter), brown (10 YR 5/3), dry.
10						9.0 - 22.5 ft. SANDY GRAVEL (GM); ~ 60% recovery ~ 50% gravel (up to 1.5" in diameter), ~ 40% sand, ~ 10% silt, brown (10 YR 5/3), damp color, damp at 9.5 ft.
			10.0 - 15.0			@ ~ 11.0 - 12.0 ft. some limonitic coloration, damp to moist.
	4555					@ ~ 12.5 sediments become saturated.
15						@ ~ 14.0 ft. sand matrix is dark gray (10 YR 4/1), saturated.
			15.0 - 20.0			
	4550					
20						
			20.0 - 23.0			
	4545					22.5 - 23.0 ft. BEDROCK - BRUSHY BASIN MEMBER OF MORRISON FORMATION - SILTSTONE; weathered siltstone, mottled, dark reddish brown (10 R 3/4) and light greenish gray (5 GY 8/1).
25						Total Depth 23.0 ft.
	4540					



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Appendix B

Loss on Drying and Sieve Data

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Table B-1. Sample Loss on Drying

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
1-1	GJAST-01	631.7	14.0	617.7	617.2	603.2	14.5	2.35
1-2	GJAST-01	719.7	14.0	705.7	694.3	680.3	25.4	3.60
1-3	GJAST-01	665.3	14.0	651.3	634.7	620.7	30.6	4.70
1-4	GJAST-01	779.7	14.0	765.7	734.5	720.5	45.2	5.90
1-5	GJAST-01	828.2	14.0	814.2	795.8	781.8	32.4	3.98
1-6	GJAST-01	482.9	14.0	468.9	462.1	448.1	20.8	4.44
1-7	GJAST-01	493.1	14.0	479.1	476.6	462.6	16.5	3.44
1-8	GJAST-01	683.8	14.0	669.8	642.4	628.4	41.4	6.18
1-9	GJAST-01	917.9	14.0	903.9	884.9	870.9	33.0	3.65
1-10	GJAST-01	1142.0	14.0	1128.0	1072.6	1058.6	69.4	6.15
1-11	GJAST-01	739.4	14.0	725.4	712.8	698.8	26.6	3.67
1-12	GJAST-01	707.2	14.0	693.2	697.7	683.7	9.5	1.37
1-13	GJAST-01	620.6	14.0	606.6	609.4	595.4	11.2	1.85
1-17	GJAST-01	879.1	14.0	865.1	827.5	813.5	51.6	5.96
1-19	GJAST-01	721.1	14.0	707.1	683.8	669.8	37.3	5.28
1-23	GJAST-01	1243.6	14.0	1229.6	1175.4	1161.4	68.2	5.55
2-1	GJAST-02	560.4	14.0	546.4	544.0	530.0	16.4	3.00
2-2	GJAST-02	918.2	14.0	904.2	911.0	897.0	7.2	0.80
2-3	GJAST-02	516.2	14.0	502.2	510.7	496.7	5.5	1.10
2-4	GJAST-02	479.7	14.0	465.7	462.8	448.8	16.9	3.63
2-5	GJAST-02	748.8	14.0	734.8	738.8	724.8	10.0	1.36
2-6	GJAST-02	696.8	14.0	682.8	690.1	676.1	6.7	0.98
2-7	GJAST-02	385.5	14.0	371.5	383.6	369.6	1.9	0.51
2-8	GJAST-02	406.7	14.0	392.7	403.8	389.8	2.9	0.74
2-9	GJAST-02	442.1	14.0	428.1	437.8	423.8	4.3	1.00
2-10	GJAST-02	529.7	14.0	515.7	523.3	509.3	6.4	1.24
2-11	GJAST-02	625.0	14.0	611.0	615.8	601.8	9.2	1.51
2-12	GJAST-02	534.0	14.0	520.0	518.6	504.6	15.4	2.96
2-13	GJAST-02	584.3	14.0	570.3	562.1	548.1	22.2	3.89
2-14	GJAST-02	503.1	14.0	489.1	479.5	465.5	23.6	4.83
2-15	GJAST-02	512.1	14.0	498.1	481.5	467.5	30.6	6.14

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
2-16	GJAST-02	649.2	14.0	635.2	612.3	598.3	36.9	5.81
2-17	GJAST-02	611.0	14.0	597.0	575.4	561.4	35.6	5.96
2-18	GJAST-02	754.9	14.0	740.9	710.6	696.6	44.3	5.98
2-19	GJAST-02	1034.9	14.0	1020.9	982.8	968.8	52.1	5.10
2-20	GJAST-02	750.4	14.0	736.4	680.2	666.2	70.2	9.53
2-21	GJAST-02	768.8	14.0	754.8	660.6	646.6	108.2	14.33
2-22	GJAST-02	974.5	14.0	960.5	908.5	894.5	66.0	6.87
2-23	GJAST-02	353.8	14.0	339.8	320.2	306.2	33.6	9.89
2-24	GJAST-02	681.5	14.0	667.5	637.8	623.8	43.7	6.55
3-1	GJAST-03	220.3	14.0	206.3	214.7	200.7	5.6	2.71
3-2	GJAST-03	392.3	14.0	378.3	386.9	372.9	5.4	1.43
3-3	GJAST-03	652.7	14.0	638.7	645.4	631.4	7.3	1.14
3-4	GJAST-03	781.1	14.0	767.1	774.5	760.5	6.6	0.86
3-5	GJAST-03	702.1	14.0	688.1	689.7	675.7	12.4	1.80
3-6	GJAST-03	641.0	14.0	627.0	635.8	621.8	5.2	0.83
3-7	GJAST-03	618.5	14.0	604.5	613.7	599.7	4.8	0.79
3-8	GJAST-03	876.5	14.0	862.5	869.5	855.5	7.0	0.81
3-9	GJAST-03	879.5	14.0	865.5	888.4	874.4	-8.9	-1.03
3-10	GJAST-03	790.9	14.0	776.9	783.6	769.6	7.3	0.94
3-11	GJAST-03	836.0	14.0	822.0	825.4	811.4	10.6	1.29
3-12	GJAST-03	871.8	14.0	857.8	854.4	840.4	17.4	2.03
3-13	GJAST-03	859.6	14.0	845.6	833.1	819.1	26.5	3.13
3-14	GJAST-03	959.9	14.0	945.9	923.8	909.8	36.1	3.82
3-15	GJAST-03	845.0	14.0	831.0	799.4	785.4	45.6	5.49
3-16	GJAST-03	748.4	14.0	734.4	705.8	691.8	42.6	5.80
3-17	GJAST-03	953.4	14.0	939.4	904.5	890.5	48.9	5.21
3-18	GJAST-03	862.4	14.0	848.4	819.2	805.2	43.2	5.09
3-19	GJAST-03	725.5	14.0	711.5	688.1	674.1	37.4	5.26
3-20	GJAST-03	676.4	14.0	662.4	608.6	594.6	67.8	10.24
3-21	GJAST-03	973.3	14.0	959.3	896.0	882.0	77.3	8.06
3-22	GJAST-03	725.5	14.0	711.5	678.9	664.9	46.6	6.55
3-23	GJAST-03	911.2	14.0	897.2	851.5	837.5	59.7	6.65
3-24	GJAST-03	1503.0	14.0	1489.0	1395.3	1381.3	107.7	7.23

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
4-1	GJAST-04	760.8	14.0	746.8	741.0	727.0	19.8	2.65
4-2	GJAST-04	597.7	14.0	583.7	586.3	572.3	11.4	1.95
4-3	GJAST-04	375.7	14.0	361.7	362.9	348.9	12.8	3.54
4-4	GJAST-04	793.6	14.0	779.6	755.9	741.9	37.7	4.84
4-5	GJAST-04	912.8	14.0	898.8	869.4	855.4	43.4	4.83
4-6	GJAST-04	923.3	14.0	909.3	908.0	894.0	15.3	1.68
5-1	GJAST-05	740.5	14.0	726.5	728.5	714.5	12.0	1.65
5-2	GJAST-05	527.2	14.0	513.2	518.2	504.2	9.0	1.75
5-3	GJAST-05	612.6	14.0	598.6	595.7	581.7	16.9	2.82
5-4	GJAST-05	569.5	14.0	555.5	556.6	542.6	12.9	2.32
5-5	GJAST-05	1131.4	14.0	1117.4	1117.6	1103.6	13.8	1.24
5-6	GJAST-05	889.9	14.0	875.9	880.1	866.1	9.8	1.12
5-7	GJAST-05	878.3	14.0	864.3	870.3	856.3	8.0	0.93
5-8	GJAST-05	897.2	14.0	883.2	889.6	875.6	7.6	0.86
5-9	GJAST-05	790.0	14.0	776.0	781.5	767.5	8.5	1.10
5-10	GJAST-05	524.7	14.0	510.7	517.5	503.5	7.2	1.41
5-11	GJAST-05	760.5	14.0	746.5	743.9	729.9	16.6	2.22
5-12	GJAST-05	1116.3	14.0	1102.3	1091.6	1077.6	24.7	2.24
5-13	GJAST-05	870.5	14.0	856.5	850.3	836.3	20.2	2.36
5-14	GJAST-05	651.3	14.0	637.3	626.5	612.5	24.8	3.89
5-15	GJAST-05	844.2	14.0	830.2	786.4	772.4	57.8	6.96
5-16	GJAST-05	854.2	14.0	840.2	803.1	789.1	51.1	6.08
5-17	GJAST-05	830.5	14.0	816.5	786.2	772.2	44.3	5.43
5-18	GJAST-05	514.1	14.0	500.1	482.8	468.8	31.3	6.26
5-19	GJAST-05	825.3	14.0	811.3	776.2	762.2	49.1	6.05
5-20	GJAST-05	723.8	14.0	709.8	652.7	638.7	71.1	10.02
5-21	GJAST-05	604.6	14.0	590.6	556.7	542.7	47.9	8.11
5-22	GJAST-05	734.0	14.0	720.0	697.5	683.5	36.5	5.07
6-1	GJAST-06	545.6	14.0	531.6	536.1	522.1	9.5	1.79
6-2	GJAST-06	640.5	14.0	626.5	620.3	606.3	20.2	3.22
6-3	GJAST-06	492.6	14.0	478.6	477.3	463.3	15.3	3.20

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
6-4	GJAST-06	644.6	14.0	630.6	630.5	616.5	14.1	2.24
6-5	GJAST-06	1079.5	14.0	1065.5	1071.1	1057.1	8.4	0.79
6-6	GJAST-06	594.1	14.0	580.1	590.6	576.6	3.5	0.60
6-7	GJAST-06	603.4	14.0	589.4	601.0	587.0	2.4	0.41
6-8	GJAST-06	766.7	14.0	752.7	761.0	747.0	5.7	0.76
6-9	GJAST-06	1015.3	14.0	1001.3	1005.5	991.5	9.8	0.98
6-10	GJAST-06	935.9	14.0	921.9	924.7	910.7	11.2	1.21
6-11	GJAST-06	698.4	14.0	684.4	686.1	672.1	12.3	1.80
6-12	GJAST-06	824.2	14.0	810.2	807.1	793.1	17.1	2.11
6-13	GJAST-06	856.0	14.0	842.0	833.9	819.9	22.1	2.62
6-14	GJAST-06	1172.5	14.0	1158.5	1130.2	1116.2	42.3	3.65
6-15	GJAST-06	868.3	14.0	854.3	809.4	795.4	58.9	6.89
6-16	GJAST-06	657.1	14.0	643.1	622.6	608.6	34.5	5.36
6-17	GJAST-06	602.3	14.0	588.3	574.1	560.1	28.2	4.79
6-18	GJAST-06	995.5	14.0	981.5	945.0	931.0	50.5	5.15
6-19	GJAST-06	883.8	14.0	869.8	839.8	825.8	44.0	5.06
6-20	GJAST-06	654.7	14.0	640.7	587.5	573.5	67.2	10.49
7-1	GJAST-07	378.6	14.0	364.6	375.1	361.1	3.5	0.96
7-2	GJAST-07	772.3	14.0	758.3	757.5	743.5	14.8	1.95
7-3	GJAST-07	820.3	14.0	806.3	799.5	785.5	20.8	2.58
7-4	GJAST-07	1036.0	14.0	1022.0	1019.0	1005.0	17.0	1.66
7-5	GJAST-07	1101.3	14.0	1087.3	1065.1	1051.1	36.2	3.33
7-6,7	GJAST-07	885.1	14.0	871.1	832.1	818.1	53.0	6.08
7-8,9	GJAST-07	614.6	14.0	600.6	585.3	571.3	29.3	4.88
7-10,11	GJAST-07	1156.2	14.0	1142.2	1067.6	1053.6	88.6	7.76
7-12,13	GJAST-07	1065.3	14.0	1051.3	976.7	962.7	88.6	8.43
7-14,15	GJAST-07	880.2	14.0	866.2	837.9	823.9	42.3	4.88
7-16,17	GJAST-07	747.5	14.0	733.5	702.2	688.2	45.3	6.18
7-18,19	GJAST-07	1055.7	14.0	1041.7	995.7	981.7	60.0	5.76
7-20,21	GJAST-07	1653.7	14.0	1639.7	1500.6	1486.6	153.1	9.34
7-22,23	GJAST-07	1598.1	14.0	1584.1	1513.4	1499.4	84.7	5.35
7-24	GJAST-07	684.3	14.0	670.3	641.4	627.4	42.9	6.40

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
8-1,2	GJAST-08	769.6	14.0	755.6	757.1	743.1	12.5	1.65
8-3,4	GJAST-08	673.0	14.0	659.0	661.6	647.6	11.4	1.73
8-5,6	GJAST-08	932.0	14.0	918.0	909.2	895.2	22.8	2.48
8-7	GJAST-08	585.8	14.0	571.8	574.2	560.2	11.6	2.03
8-8	GJAST-08	702.8	14.0	688.8	696.1	682.1	6.7	0.97
8-9	GJAST-08	591.0	14.0	577.0	585.5	571.5	5.5	0.95
8-10	GJAST-08	852.9	14.0	838.9	845.5	831.5	7.4	0.88
8-11	GJAST-08	1027.9	14.0	1013.9	1012.4	998.4	15.5	1.53
8-12	GJAST-08	803.2	14.0	789.2	787.7	773.7	15.5	1.96
8-13	GJAST-08	1012.9	14.0	998.9	983.5	969.5	29.4	2.94
8-14	GJAST-08	825.5	14.0	811.5	791.3	777.3	34.2	4.21
8-15	GJAST-08	719.9	14.0	705.9	657.0	643.0	62.9	8.91
8-16,17	GJAST-08	970.5	14.0	956.5	924.2	910.2	46.3	4.84
8-18,19	GJAST-08	919.6	14.0	905.6	864.9	850.9	54.7	6.04
8-20,21	GJAST-08	1255.0	14.0	1241.0	1136.3	1122.3	118.7	9.56
8-22,23	GJAST-08	1043.0	14.0	1029.0	992.0	978.0	51.0	4.96
8-24	GJAST-08	449.6	14.0	435.6	412.9	398.9	36.7	8.43
9-1	GJAST-09	376.6	14.0	362.6	371.0	357.0	5.6	1.54
9-2	GJAST-09	476.1	14.0	462.1	469.5	455.5	6.6	1.43
9-3	GJAST-09	550.7	14.0	536.7	544.0	530.0	6.7	1.25
9-4	GJAST-09	689.2	14.0	675.2	679.6	665.6	9.6	1.42
9-5	GJAST-09	542.1	14.0	528.1	531.2	517.2	10.9	2.06
9-6	GJAST-09	606.3	14.0	592.3	596.5	582.5	9.8	1.65
10a-1,2	GJAST-10	956.8	14.0	942.8	935.9	921.9	20.9	2.22
10a-3,4	GJAST-10	953.3	14.0	939.3	936.5	922.5	16.8	1.79
10-5	GJAST-10	575.2	14.0	561.2	568.8	554.8	6.4	1.14
10-6	GJAST-10	312.1	14.0	298.1	306.3	292.3	5.8	1.95
10-7	GJAST-10	369.8	14.0	355.8	362.4	348.4	7.4	2.08
10-8	GJAST-10	491.9	14.0	477.9	484.0	470.0	7.9	1.65
10-9	GJAST-10	854.8	14.0	840.8	840.6	826.6	14.2	1.69
10-10	GJAST-10	986.3	14.0	972.3	967.7	953.7	18.6	1.91
10-11,12	GJAST-10	1113.7	14.0	1099.7	1075.1	1061.1	38.6	3.51

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
10-13,14	GJAST-10	1247.9	14.0	1233.9	1175.8	1161.8	72.1	5.84
10-15,16	GJAST-10	1712.4	14.0	1698.4	1612.8	1598.8	99.6	5.86
10-17,18	GJAST-10	1402.4	14.0	1388.4	1333.5	1319.5	68.9	4.96
10-19,20	GJAST-10	1388.2	14.0	1374.2	1308.4	1294.4	79.8	5.81
10-21	GJAST-10	1373.0	14.0	1359.0	1295.8	1281.8	77.2	5.68
11-1	GJAST-11	599.6	14.0	585.6	578.2	564.2	21.4	3.65
11-2	GJAST-11	404.1	14.0	390.1	380.5	366.5	23.6	6.05
11-3	GJAST-11	390.6	14.0	376.6	354.2	340.2	36.4	9.67
11-4	GJAST-11	432.6	14.0	418.6	391.9	377.9	40.7	9.72
11-5	GJAST-11	388.2	14.0	374.2	371.2	357.2	17.0	4.54
11-6	GJAST-11	401.5	14.0	387.5	376.1	362.1	25.4	6.55
11-7	GJAST-11	375.2	14.0	361.2	352.0	338.0	23.2	6.42
11-8	GJAST-11	436.2	14.0	422.2	407.9	393.9	28.3	6.70
11-9	GJAST-11	536.2	14.0	522.2	517.2	503.2	19.0	3.64
11-10,11	GJAST-11	476.4	14.0	462.4	463.6	449.6	12.8	2.77
11-12,13	GJAST-11	395.1	14.0	381.1	379.3	365.3	15.8	4.15
11-14,15	GJAST-11	685.6	14.0	671.6	638.5	624.5	47.1	7.01
11-16,17	GJAST-11	941.4	14.0	927.4	890.8	876.8	50.6	5.46
11-18,19	GJAST-11	392.0	14.0	378.0	368.6	354.6	23.4	6.19
11-20	GJAST-11	446.3	14.0	432.3	412.1	398.1	34.2	7.91
12-1	GJAST-12	518.3	14.0	504.3	512.3	498.3	6.0	1.19
12-2	GJAST-12	482.6	14.0	468.6	474.6	460.6	8.0	1.71
12-3	GJAST-12	399.9	14.0	385.9	388.3	374.3	11.6	3.01
12-4	GJAST-12	738.0	14.0	724.0	718.7	704.7	19.3	2.67
12-5	GJAST-12	441.7	14.0	427.7	425.8	411.8	15.9	3.72
12-6	GJAST-12	392.8	14.0	378.8	379.4	365.4	13.4	3.54
12-7	GJAST-12	467.1	14.0	453.1	449.3	435.3	17.8	3.93
12-8	GJAST-12	312.6	14.0	298.6	310.1	296.1	2.5	0.84
12-9	GJAST-12	529.1	14.0	515.1	523.5	509.5	5.6	1.09
12-10	GJAST-12	449.9	14.0	435.9	446.8	432.8	3.1	0.71
12-11,12	GJAST-12	671.2	14.0	657.2	640.1	626.1	31.1	4.73
12-13,14	GJAST-12	852.4	14.0	838.4	802.2	788.2	50.2	5.99

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
12-15,16	GJAST-12	931.9	14.0	917.9	868.4	854.4	63.5	6.92
12-17,18	GJAST-12	805.8	14.0	791.8	755.9	741.9	49.9	6.30
12-19,20	GJAST-12	597.1	14.0	583.1	560.2	546.2	36.9	6.33
13-1	GJAST-13	477.1	14.0	463.1	467.7	453.7	9.4	2.03
13-2	GJAST-13	657.2	14.0	643.2	650.1	636.1	7.1	1.10
13-3	GJAST-13	830.7	14.0	816.7	815.2	801.2	15.5	1.90
13-4	GJAST-13	794.8	14.0	780.8	775.3	761.3	19.5	2.50
13-5	GJAST-13	715.5	14.0	701.5	699.8	685.8	15.7	2.24
13-6	GJAST-13	493.5	14.0	479.5	485.8	471.8	7.7	1.61
13-7	GJAST-13	449.4	14.0	435.4	433.6	419.6	15.8	3.63
13-8	GJAST-13	703.2	14.0	689.2	672.3	658.3	30.9	4.48
13-9	GJAST-13	675.0	14.0	661.0	656.7	642.7	18.3	2.77
13-10	GJAST-13	669.4	14.0	655.4	637.8	623.8	31.6	4.82
13-11	GJAST-13	644.4	14.0	630.4	617.1	603.1	27.3	4.33
13-12	GJAST-13	512.5	14.0	498.5	496.8	482.8	15.7	3.15
13-13	GJAST-13	523.6	14.0	509.6	504.2	490.2	19.4	3.81
13-14	GJAST-13	776.5	14.0	762.5	732.0	718.0	44.5	5.84
13-15	GJAST-13	770.5	14.0	756.5	712.7	698.7	57.8	7.64
13-16	GJAST-13	710.6	14.0	696.6	670.7	656.7	39.9	5.73
13-17	GJAST-13	587.8	14.0	573.8	558.0	544.0	29.8	5.19
13-18	GJAST-13	556.7	14.0	542.7	524.7	510.7	32.0	5.90
13-19	GJAST-13	685.7	14.0	671.7	643.8	629.8	41.9	6.24
13-20	GJAST-13	576.8	14.0	562.8	518.4	504.4	58.4	10.38
13-21	GJAST-13	566.6	14.0	552.6	531.7	517.7	34.9	6.32
13-22	GJAST-13	625.8	14.0	611.8	588.3	574.3	37.5	6.13
13-23	GJAST-13	1053.5	14.0	1039.5	984.3	970.3	69.2	6.66
14-1	GJAST-14	511.4	14.0	497.4	503.1	489.1	8.3	1.67
14-2	GJAST-14	430.4	14.0	416.4	418.4	404.4	12.0	2.88
14-3	GJAST-14	578.1	14.0	564.1	544.0	530.0	34.1	6.05
14-4	GJAST-14	625.2	14.0	611.2	587.1	573.1	38.1	6.23
14-5	GJAST-14	416.2	14.0	402.2	390.5	376.5	25.7	6.39
14-6	GJAST-14	292.8	14.0	278.8	276.9	262.9	15.9	5.70

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
14-7	GJAST-14	282.4	14.0	268.4	258.1	244.1	24.3	9.05
14-8	GJAST-14	288.1	14.0	274.1	260.5	246.5	27.6	10.07
14-9	GJAST-14	353.8	14.0	339.8	316.0	302.0	37.8	11.12
14-10	GJAST-14	506.0	14.0	492.0	448.3	434.3	57.7	11.73
14-11,12	GJAST-14	488.3	14.0	474.3	468.3	454.3	20.0	4.22
14-13,14	GJAST-14	773.4	14.0	759.4	742.1	728.1	31.3	4.12
14-15,16	GJAST-14	1445.2	14.0	1431.2	1366.5	1352.5	78.7	5.50
14-17,18	GJAST-14	843.2	14.0	829.2	800.2	786.2	43.0	5.19
14-19,20	GJAST-14	1163.9	14.0	1149.9	1050.0	1036.0	113.9	9.91
14-21	GJAST-14	1214.7	14.0	1200.7	1156.3	1142.3	58.4	4.86
15-1	GJAST-15	675.3	14.0	661.3	663.2	649.2	12.1	1.83
15-2	GJAST-15	546.9	14.0	532.9	534.1	520.1	12.8	2.40
15-3	GJAST-15	575.2	14.0	561.2	542.1	528.1	33.1	5.90
15-4	GJAST-15	483.4	14.0	469.4	465.8	451.8	17.6	3.75
15-5	GJAST-15	532.0	14.0	518.0	524.5	510.5	7.5	1.45
15-6	GJAST-15	459.9	14.0	445.9	445.8	431.8	14.1	3.16
15-7	GJAST-15	506.0	14.0	492.0	496.9	482.9	9.1	1.85
15-8	GJAST-15	517.3	14.0	503.3	507.5	493.5	9.8	1.95
15-9	GJAST-15	698.7	14.0	684.7	637.1	623.1	61.6	9.00
15-10	GJAST-15	625.5	14.0	611.5	504.4	490.4	121.1	19.80
15-11	GJAST-15	568.9	14.0	554.9	459.6	445.6	109.3	19.70
15-12	GJAST-15	597.3	14.0	583.3	469.5	455.5	127.8	21.91
15-13	GJAST-15	513.8	14.0	499.8	393.1	379.1	120.7	24.15
15-14	GJAST-15	585.9	14.0	571.9	419.1	405.1	166.8	29.17
15-15,16	GJAST-15	1136.8	14.0	1122.8	1017.9	1003.9	118.9	10.59
15-17,18	GJAST-15	552.7	14.0	538.7	520.9	506.9	31.8	5.90
15-19,20	GJAST-15	730.0	14.0	716.0	684.6	670.6	45.4	6.34
16-1	GJAST-16	528.3	14.0	514.3	520.0	506.0	8.3	1.61
16-2	GJAST-16	451.8	14.0	437.8	447.6	433.6	4.2	0.96
16-3	GJAST-16	692.0	14.0	678.0	683.8	669.8	8.2	1.21
16-4	GJAST-16	642.1	14.0	628.1	637.8	623.8	4.3	0.68
16-5	GJAST-16	733.8	14.0	719.8	718.5	704.5	15.3	2.13

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
16-6,7	GJAST-16	479.8	14.0	465.8	464.3	450.3	15.5	3.33
16-8,9	GJAST-16	559.1	14.0	545.1	528.1	514.1	31.0	5.69
16-10,11	GJAST-16	728.3	14.0	714.3	701.7	687.7	26.6	3.72
16-12,13	GJAST-16	1035.2	14.0	1021.2	989.9	975.9	45.3	4.44
16-14,15	GJAST-16	842.7	14.0	828.7	788.5	774.5	54.2	6.54
16-16,17	GJAST-16	681.5	14.0	667.5	641.7	627.7	39.8	5.96
16-18,19	GJAST-16	844.2	14.0	830.2	789.9	775.9	54.3	6.54
16-20,20.5	GJAST-16	1157.5	14.0	1143.5	1084.9	1070.9	72.6	6.35
17-1	GJAST-17	590.2	14.0	576.2	576.7	562.7	13.5	2.34
17-2	GJAST-17	707.4	14.0	693.4	695.3	681.3	12.1	1.75
17-3	GJAST-17	719.4	14.0	705.4	707.3	693.3	12.1	1.72
17-4	GJAST-17	574.9	14.0	560.9	561.7	547.7	13.2	2.35
17-5	GJAST-17	439.4	14.0	425.4	427.2	413.2	12.2	2.87
17-6	GJAST-17	742.3	14.0	728.3	732.0	718.0	10.3	1.41
17-7	GJAST-17	438.4	14.0	424.4	429.2	415.2	9.2	2.17
17-8	GJAST-17	461.3	14.0	447.3	447.4	433.4	13.9	3.11
17-9	GJAST-17	728.8	14.0	714.8	709.6	695.6	19.2	2.69
17-10	GJAST-17	721.5	14.0	707.5	694.2	680.2	27.3	3.86
17-11,12	GJAST-17	1427.5	14.0	1413.5	1354.7	1340.7	72.8	5.15
17-13,14	GJAST-17	677.5	14.0	663.5	646.7	632.7	30.8	4.64
17-15,16	GJAST-17	1007.7	14.0	993.7	959.3	945.3	48.4	4.87
17-17,18	GJAST-17	1164.2	14.0	1150.2	1113.9	1099.9	50.3	4.37
17-19,20	GJAST-17	1063.2	14.0	1049.2	984.7	970.7	78.5	7.48
17-21,22	GJAST-17	1898.8	14.0	1884.8	1717.5	1703.5	181.3	9.62
17-23,24	GJAST-17	1487.5	14.0	1473.5	1361.8	1347.8	125.7	8.53
18-1	GJAST-18	422.8	14.0	408.8	418.3	404.3	4.5	1.10
18-2	GJAST-18	685.0	14.0	671.0	681.9	667.9	3.1	0.46
18-3	GJAST-18	668.9	14.0	654.9	663.1	649.1	5.8	0.89
18-4	GJAST-18	1077.4	14.0	1063.4	1064.3	1050.3	13.1	1.23
18-5	GJAST-18	865.1	14.0	851.1	853.0	839.0	12.1	1.42
18-6	GJAST-18	814.7	14.0	800.7	705.7	691.7	109.0	13.61
18-7	GJAST-18	815.1	14.0	801.1	797.1	783.1	18.0	2.25

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
18-8	GJAST-18	619.2	14.0	605.2	608.5	594.5	10.7	1.77
18-9	GJAST-18	617.6	14.0	603.6	609.9	595.9	7.7	1.28
18-10	GJAST-18	1205.8	14.0	1191.8	1152.5	1138.5	53.3	4.47
18-11,12	GJAST-18	1331.4	14.0	1317.4	1277.5	1263.5	53.9	4.09
18-13,14	GJAST-18	1141.1	14.0	1127.1	1083.5	1069.5	57.6	5.11
18-15	GJAST-18	825.2	14.0	811.2	732.6	718.6	92.6	11.42
18-16	GJAST-18	1222.8	14.0	1208.8	1115.7	1101.7	107.1	8.86
18-17	GJAST-18	957.4	14.0	943.4	896.7	882.7	60.7	6.43
18-18	GJAST-18	1051.6	14.0	1037.6	984.3	970.3	67.3	6.49
18-19	GJAST-18	982.2	14.0	968.2	925.6	911.6	56.6	5.85
18-20	GJAST-18	918.2	14.0	904.2	859.3	845.3	58.9	6.51
18-21	GJAST-18	1027.4	14.0	1013.4	972.8	958.8	54.6	5.39
19-1	GJAST-19	332.5	14.0	318.5	321.6	307.6	10.9	3.42
19-2	GJAST-19	895.9	14.0	881.9	882.6	868.6	13.3	1.51
19-3	GJAST-19	720.0	14.0	706.0	703.6	689.6	16.4	2.32
19-4	GJAST-19	839.1	14.0	825.1	814.3	800.3	24.8	3.01
19-5	GJAST-19	546.9	14.0	532.9	507.0	493.0	39.9	7.49
19-6	GJAST-19	707.9	14.0	693.9	620.3	606.3	87.6	12.62
19-7	GJAST-19	526.3	14.0	512.3	502.0	488.0	24.3	4.74
19-8	GJAST-19	564.7	14.0	550.7	519.2	505.2	45.5	8.26
19-9	GJAST-19	722.8	14.0	708.8	660.6	646.6	62.2	8.78
19-10	GJAST-19	1100.6	14.0	1086.6	1076.0	1062.0	24.6	2.26
19-11,12	GJAST-19	1247.3	14.0	1233.3	1194.5	1180.5	52.8	4.28
19-13,14	GJAST-19	1066.3	14.0	1052.3	1019.8	1005.8	46.5	4.42
19-15,16	GJAST-19	1546.9	14.0	1532.9	1460.8	1446.8	86.1	5.62
19-17,18	GJAST-19	909.4	14.0	895.4	851.4	837.4	58.0	6.48
19-19,20	GJAST-19	740.3	14.0	726.3	705.0	691.0	35.3	4.86
20-1	GJAST-20	361.0	14.0	347.0	356.2	342.2	4.8	1.38
20-2	GJAST-20	566.9	14.0	552.9	560.8	546.8	6.1	1.10
20-3	GJAST-20	614.3	14.0	600.3	605.9	591.9	8.4	1.40
20-4	GJAST-20	947.8	14.0	933.8	927.9	913.9	19.9	2.13
20-5	GJAST-20	941.1	14.0	927.1	909.8	895.8	31.3	3.38

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
20-6	GJAST-20	900.4	14.0	886.4	879.1	865.1	21.3	2.40
20-7	GJAST-20	777.8	14.0	763.8	752.1	738.1	25.7	3.36
20-8	GJAST-20	658.8	14.0	644.8	626.5	612.5	32.3	5.01
20-9	GJAST-20	1217.1	14.0	1203.1	1134.4	1120.4	82.7	6.87
20-10	GJAST-20	994.0	14.0	980.0	933.6	919.6	60.4	6.16
20-11,12	GJAST-20	1413.7	14.0	1399.7	1365.7	1351.7	48.0	3.43
20-13,14	GJAST-20	1105.3	14.0	1091.3	1062.3	1048.3	43.0	3.94
20-15,16	GJAST-20	1013.1	14.0	999.1	948.6	934.6	64.5	6.46
20-17,18	GJAST-20	928.2	14.0	914.2	868.0	854.0	60.2	6.58
20-19,20	GJAST-20	2224.5	14.0	2210.5	2099.6	2085.6	124.9	5.65
21-1	GJAST-21	306.3	14.0	292.3	298.4	284.4	7.9	2.70
21-2	GJAST-21	535.3	14.0	521.3	528.7	514.7	6.6	1.27
21-3	GJAST-21	1004.1	14.0	990.1	979.7	965.7	24.4	2.46
21-4	GJAST-21	1079.3	14.0	1065.3	1015.4	1001.4	63.9	6.00
21-5	GJAST-21	648.6	14.0	634.6	617.5	603.5	31.1	4.90
21-6	GJAST-21	845.7	14.0	831.7	834.5	820.5	11.2	1.35
21-7	GJAST-21	517.1	14.0	503.1	511.2	497.2	5.9	1.17
21-8	GJAST-21	658.5	14.0	644.5	650.5	636.5	8.0	1.24
21-9	GJAST-21	637.8	14.0	623.8	630.4	616.4	7.4	1.19
21-10	GJAST-21	777.2	14.0	763.2	766.5	752.5	10.7	1.40
21-11,12	GJAST-21	1217.6	14.0	1203.6	1172.8	1158.8	44.8	3.72
21-13,14	GJAST-21	1203.0	14.0	1189.0	1145.3	1131.3	57.7	4.85
21-15,16	GJAST-21	1672.8	14.0	1658.8	1583.5	1569.5	89.3	5.38
21-17,18	GJAST-21	1181.4	14.0	1167.4	1116.8	1102.8	64.6	5.53
21-19,20	GJAST-21	1721.9	14.0	1707.9	1600.8	1586.8	121.1	7.09
21-21	GJAST-21	851.5	14.0	837.5	800.7	786.7	50.8	6.07
22-1	GJAST-22	454.8	14.0	440.8	448.1	434.1	6.7	1.52
22-2	GJAST-22	585.2	14.0	571.2	568.0	554.0	17.2	3.01
22-3	GJAST-22	509.1	14.0	495.1	481.7	467.7	27.4	5.53
22-4	GJAST-22	589.1	14.0	575.1	561.9	547.9	27.2	4.73
22-5	GJAST-22	906.3	14.0	892.3	854.6	840.6	51.7	5.79
22-6	GJAST-22	450.0	14.0	436.0	439.0	425.0	11.0	2.52

Table B-1. Sample Loss on Drying (continued)

Field Sample Number	Field Boring Number	Gross Wet (g)	Tare (g)	Net Wet (g)	Gross Dry (g)	Net Dry (g)	LOD (g)	LOD (%)
22-7	GJAST-22	482.6	14.0	468.6	475.3	461.3	7.3	1.56
22-8	GJAST-22	544.2	14.0	530.2	537.3	523.3	6.9	1.30
22-9	GJAST-22	850.6	14.0	836.6	840.7	826.7	9.9	1.18
22-10	GJAST-22	804.1	14.0	790.1	788.1	774.1	16.0	2.03
22-11,12	GJAST-22	1049.8	14.0	1035.8	1015.4	1001.4	34.4	3.32
22-13,14	GJAST-22	1522.6	14.0	1508.6	1433.4	1419.4	89.2	5.91
22-15,16	GJAST-22	1761.5	14.0	1747.5	1652.2	1638.2	109.3	6.25
22-17,18	GJAST-22	1160.1	14.0	1146.1	1093.2	1079.2	66.9	5.84
22-19,20	GJAST-22	1532.6	14.0	1518.6	1440.0	1426.0	92.6	6.10
22-21,22	GJAST-22	1691.2	14.0	1677.2	1548.1	1534.1	143.1	8.53

Note:

Second value in field sample number is depth in feet.

Abbreviations:

g = grams

LOD = loss on drying

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
1-1	GJAST-01	>2mm	561.8	892.6	330.8		54.8	Gravel up to 0.5"
		<2mm	358.6	630.9	272.3	603.1	45.2	
1-2	GJAST-01	>2mm	561.8	1067.3	505.5		74.3	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	533.2	174.6	680.1	25.7	
1-3	GJAST-01	>2mm	561.8	1002.2	440.4		71.0	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	538.7	180.1	620.5	29.0	
1-4	GJAST-01	>2mm	561.8	1100.2	538.4		74.8	Gravel up to 0.75". A lot of hard dirt that didn't break down.
		<2mm	358.6	540.3	181.7	720.1	25.2	
1-5	GJAST-01	>2mm	561.8	1195.7	633.9		81.1	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	506.1	147.5	781.4	18.9	
1-6	GJAST-01	>2mm	561.8	897.9	336.1		75.1	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	470.3	111.7	447.8	24.9	
1-7	GJAST-01	>2mm	561.8	935.9	374.1		80.9	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	446.8	88.2	462.3	19.1	
1-8	GJAST-01	>2mm	561.8	1032.4	470.6		74.9	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	516.2	157.6	628.2	25.1	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
1-9	GJAST-01	>2mm	561.8	1237.1	675.3		77.5	Cobbles up to 2"> Some hard dirt that didn't break down.
		<2mm	358.6	554.1	195.5	870.8	22.5	
1-10	GJAST-01	>2mm	561.8	1264.5	702.7		66.4	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	714.4	355.8	1058.5	33.6	
1-11	GJAST-01	>2mm	561.8	1078.9	517.1		74.0	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	540.3	181.7	698.8	26.0	
1-12	GJAST-01	>2mm	561.8	1099.1	537.3		78.6	Cobbles up to 1.5"
		<2mm	358.6	505	146.4	683.7	21.4	
1-13	GJAST-01	>2mm	561.8	986.4	424.6		71.3	Cobbles up to 1.5"
		<2mm	358.6	529.5	170.9	595.5	28.7	
1-17	GJAST-01	>2mm	561.8	1174.6	612.8		75.3	Cobbles up to 1"
		<2mm	358.6	559.2	200.6	813.4	24.7	
1-19	GJAST-01	>2mm	561.8	1058.7	496.9		74.2	Cobbles up to 2"
		<2mm	358.6	531.3	172.7	669.6	25.8	
1-23	GJAST-01	>2mm	561.8	1470.1	908.3		78.3	Cobbles up to 2"
		<2mm	358.6	611	252.4	1160.7	21.7	
2-1	GJAST-02	>2mm	561.8	856.7	294.9		55.7	Cobbles up to 1.5"
		<2mm	358.6	593.4	234.8	529.7	44.3	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
2-2	GJAST-02	>2mm	561.8	1333.5	771.7		86.1	Cobbles up to 2"
		<2mm	358.6	483.7	125.1	896.8	13.9	
2-3	GJAST-02	>2mm	561.8	925.7	363.9		73.3	Cobbles up to 2". A few roots.
		<2mm	358.6	490.9	132.3	496.2	26.7	
2-4	GJAST-02	>2mm	561.8	570.4	8.6		1.9	Entire +2 mm is hard dirt. Very light pressure applied to push softer chunks through sieve. Some harder chunks remain.
		<2mm	358.6	798.1	439.5	448.1	98.1	
2-5	GJAST-02	>2mm	561.8	1104.3	542.5		74.9	Cobbles up to 2"
		<2mm	358.6	540.6	182	724.5	25.1	
2-6	GJAST-02	>2mm	561.8	1076.3	514.5		76.1	Cobbles up to 2"
		<2mm	358.6	520	161.4	675.9	23.9	
2-7	GJAST-02	>2mm	561.8	819.7	257.9		69.8	Cobbles up to 2"
		<2mm	358.6	470.1	111.5	369.4	30.2	
2-8	GJAST-02	>2mm	561.8	838.4	276.6		71.0	Cobbles up to 1.5"
		<2mm	358.6	471.5	112.9	389.5	29.0	
2-9	GJAST-02	>2mm	561.8	868.2	306.4		72.3	Cobbles up to 1.5"
		<2mm	358.6	475.7	117.1	423.5	27.7	
2-10	GJAST-02	>2mm	561.8	960.7	398.9		78.3	Cobbles up to 1.5"
		<2mm	358.6	469	110.4	509.3	21.7	
2-11	GJAST-02	>2mm	561.8	1036.1	474.3		78.8	Cobbles up to 1.5"
		<2mm	358.6	486.1	127.5	601.8	21.2	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
2-12	GJAST-02	>2mm	561.8	926.3	364.5		72.2	Cobbles up to 1"
		<2mm	358.6	498.7	140.1	504.6	27.8	
2-13	GJAST-02	>2mm	561.8	956.5	394.7		72.0	Cobbles up to 1.5"
		<2mm	358.6	511.9	153.3	548	28.0	
2-14	GJAST-02	>2mm	561.8	897.4	335.6		72.1	Cobbles up to 1"
		<2mm	358.6	488.4	129.8	465.4	27.9	
2-15	GJAST-02	>2mm	561.8	886.1	324.3		69.4	Cobbles up to 2"
		<2mm	358.6	501.7	143.1	467.4	30.6	
2-16	GJAST-02	>2mm	561.8	1011.8	450		75.2	Cobbles up to 1.5"
		<2mm	358.6	507.2	148.6	598.6	24.8	
2-17	GJAST-02	>2mm	561.8	977.7	415.9		74.1	Cobbles up to 1.5"
		<2mm	358.6	504.1	145.5	561.4	25.9	
2-18	GJAST-02	>2mm	561.8	1060.5	498.7		71.6	Cobbles up to 1.5"
		<2mm	358.6	556.4	197.8	696.5	28.4	
2-19	GJAST-02	>2mm	561.8	1282.7	720.9		74.4	Cobbles up to 1.5"
		<2mm	358.6	606.5	247.9	968.8	25.6	
2-20	GJAST-02	>2mm	561.8	922.1	360.3		54.1	Cobbles up to 1.5"
		<2mm	358.6	664.5	305.9	666.2	45.9	
2-21	GJAST-02	>2mm	561.8	834.4	272.6		42.2	Cobbles up to 1.5"
		<2mm	358.6	732.5	373.9	646.5	57.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
2-22	GJAST-02	>2mm	561.8	1164.2	602.4		67.4	Cobbles up to 2"
		<2mm	358.6	650.5	291.9	894.3	32.6	
2-23	GJAST-02	>2mm	561.8	715.5	153.7		50.2	Cobbles up to 2"
		<2mm	358.6	511.1	152.5	306.2	49.8	
2-24	GJAST-02	>2mm	561.8	1020.5	458.7		73.5	Cobbles up to 2"
		<2mm	358.6	523.8	165.2	623.9	26.5	
3-1	GJAST-03	>2mm	561.8	680.4	118.6		59.1	Gravel up to 0.75" A few roots.
		<2mm	358.6	440.7	82.1	200.7	40.9	
3-2	GJAST-03	>2mm	561.8	811.1	249.3		66.8	Gravel up to 0.75"
		<2mm	358.6	482.3	123.7	373	33.2	
3-3	GJAST-03	>2mm	561.8	947	385.2		61.0	Cobbles up to 1.5"
		<2mm	358.6	604.8	246.2	631.4	39.0	
3-4	GJAST-03	>2mm	561.8	1125.2	563.4		74.1	Cobbles up to 1.5" A few roots.
		<2mm	358.6	555.7	197.1	760.5	25.9	
3-5	GJAST-03	>2mm	561.8	721.6	159.8		23.6	Cobbles up to 1.5" A few roots.
		<2mm	358.6	874.5	515.9	675.7	76.4	
3-6	GJAST-03	>2mm	561.8	1056.3	494.5		79.5	Cobbles up to 1.5"
		<2mm	358.6	486	127.4	621.9	20.5	
3-7	GJAST-03	>2mm	561.8	1005.5	443.7		74.0	Cobbles up to 2"
		<2mm	358.6	514.7	156.1	599.8	26.0	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
3-8	GJAST-03	>2mm	561.8	1233.1	671.3		78.5	Cobbles up to 1.5"
		<2mm	358.6	542.8	184.2	855.5	21.5	
3-9	GJAST-03	>2mm	561.8	1201.2	639.4		73.1	Cobbles up to 1.5"
		<2mm	358.6	593.4	234.8	874.2	26.9	
3-10	GJAST-03	>2mm	561.8	1120.4	558.6		72.6	Cobbles up to 2"
		<2mm	358.6	569.4	210.8	769.4	27.4	
3-11	GJAST-03	>2mm	561.8	1179	617.2		76.1	Cobbles up to 1.5"
		<2mm	358.6	552.6	194	811.2	23.9	
3-12	GJAST-03	>2mm	561.8	1180.1	618.3		73.6	Cobbles up to 2"
		<2mm	358.6	580.5	221.9	840.2	26.4	
3-13	GJAST-03	>2mm	561.8	1149.8	588		71.8	Cobbles up to 2"
		<2mm	358.6	589.6	231	819	28.2	
3-14	GJAST-03	>2mm	561.8	1295.2	733.4		80.6	Cobbles up to 2"
		<2mm	358.6	534.8	176.2	909.6	19.4	
3-15	GJAST-03	>2mm	561.8	1168.1	606.3		77.2	Cobbles up to 2"
		<2mm	358.6	537.4	178.8	785.1	22.8	
3-16	GJAST-03	>2mm	561.8	1074	512.2		74.0	Cobbles up to 1.5"
		<2mm	358.6	538.1	179.5	691.7	26.0	
3-17	GJAST-03	>2mm	561.8	1221.7	659.9		74.1	Cobbles up to 2"
		<2mm	358.6	588.9	230.3	890.2	25.9	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
3-18	GJAST-03	>2mm	561.8	1171.9	610.1		75.8	Cobbles up to 1.5"
		<2mm	358.6	553.6	195	805.1	24.2	
3-19	GJAST-03	>2mm	561.8	1068.5	506.7		75.2	Cobbles up to 1.5"
		<2mm	358.6	525.9	167.3	674	24.8	
3-20	GJAST-03	>2mm	561.8	858.7	296.9		49.9	Cobbles up to 2"
		<2mm	358.6	656.2	297.6	594.5	50.1	
3-21	GJAST-03	>2mm	561.8	1158.1	596.3		67.6	Cobbles up to 2"
		<2mm	358.6	644	285.4	881.7	32.4	
3-22	GJAST-03	>2mm	561.8	1059.1	497.3		74.8	Cobbles up to 2"
		<2mm	358.6	525.9	167.3	664.6	25.2	
3-23	GJAST-03	>2mm	561.8	1170	608.2		72.7	Cobbles up to 1.5"
		<2mm	358.6	587.4	228.8	837	27.3	
3-24	GJAST-03	>2mm	561.8	1500.6	938.8		68.0	Cobbles up to 2"
		<2mm	358.6	800.2	441.6	1380.4	32.0	
4-1	GJAST-04	>2mm	561.8	945.9	384.1		53.0	Gravel up to 0.5". A few large woody plant materials.
		<2mm	358.6	699.6	341	725.1	47.0	
4-2	GJAST-04	>2mm	561.8	944.3	382.5		66.9	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	548.1	189.5	572	33.1	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
4-3	GJAST-04	>2mm	561.8	762.3	200.5		57.5	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	506.8	148.2	348.7	42.5	
4-4	GJAST-04	>2mm	561.8	1053.4	491.6		66.3	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	608.9	250.3	741.9	33.7	
4-5	GJAST-04	>2mm	561.8	1138.4	576.6		67.4	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	637.4	278.8	855.4	32.6	
4-6	GJAST-04	>2mm	561.8	1242.7	680.9		76.2	Cobbles up to 2"
		<2mm	358.6	571.6	213	893.9	23.8	
5-1	GJAST-05	>2mm	561.8	1038.4	476.6		66.7	Cobbles up to 1.5"
		<2mm	358.6	596.3	237.7	714.3	33.3	
5-2	GJAST-05	>2mm	561.8	778.4	216.6		43.0	Cobbles up to 1"
		<2mm	358.6	646	287.4	504	57.0	
5-3	GJAST-05	>2mm	561.8	562	0.2		0.0	Very light pressure applied to +2 mm fraction to break up dirt chunks.
		<2mm	358.6	940.2	581.6	581.8	100.0	
5-4	GJAST-05	>2mm	561.8	561.9	0.1		0.0	Very light pressure applied to +2 mm fraction to break up dirt chunks. A couple of roots.
		<2mm	358.6	901	542.4	542.5	100.0	
5-5	GJAST-05	>2mm	561.8	1354.7	792.9		71.9	Cobbles up to 2"
		<2mm	358.6	668.8	310.2	1103.1	28.1	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
5-6	GJAST-05	>2mm	561.8	1208.6	646.8		74.7	Cobbles up to 1.5"
		<2mm	358.6	578	219.4	866.2	25.3	
5-7	GJAST-05	>2mm	561.8	1214	652.2		76.2	Cobbles up to 2"
		<2mm	358.6	562.5	203.9	856.1	23.8	
5-8	GJAST-05	>2mm	561.8	1244.4	682.6		78.0	Cobbles up to 2"
		<2mm	358.6	551.4	192.8	875.4	22.0	
5-9	GJAST-05	>2mm	561.8	1139.6	577.8		75.3	Cobbles up to 1.5"
		<2mm	358.6	548.1	189.5	767.3	24.7	
5-10	GJAST-05	>2mm	561.8	877.2	315.4		62.7	Cobbles up to 1.5"
		<2mm	358.6	546.4	187.8	503.2	37.3	
5-11	GJAST-05	>2mm	561.8	1094.2	532.4		73.0	Cobbles up to 2"
		<2mm	358.6	555.7	197.1	729.5	27.0	
5-12	GJAST-05	>2mm	561.8	1357.1	795.3		73.8	Cobbles up to 2"
		<2mm	358.6	640.6	282	1077.3	26.2	
5-13	GJAST-05	>2mm	561.8	1184.4	622.6		74.5	Cobbles up to 2"
		<2mm	358.6	572	213.4	836	25.5	
5-14	GJAST-05	>2mm	561.8	1023.2	461.4		75.4	Cobbles up to 1.5"
		<2mm	358.6	509.3	150.7	612.1	24.6	
5-15	GJAST-05	>2mm	561.8	1123.3	561.5		72.7	Cobbles up to 2"
		<2mm	358.6	569.3	210.7	772.2	27.3	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
5-16	GJAST-05	>2mm	561.8	1165.3	603.5		76.5	Cobbles up to 2"
		<2mm	358.6	543.9	185.3	788.8	23.5	
5-17	GJAST-05	>2mm	561.8	1142	580.2		75.2	Cobbles up to 2"
		<2mm	358.6	550.3	191.7	771.9	24.8	
5-18	GJAST-05	>2mm	561.8	905.1	343.3		73.3	Cobbles up to 1.5"
		<2mm	358.6	483.8	125.2	468.5	26.7	
5-19	GJAST-05	>2mm	561.8	1134.3	572.5		75.1	Cobbles up to 1.5"
		<2mm	358.6	548.1	189.5	762	24.9	
5-20	GJAST-05	>2mm	561.8	866.2	304.4		47.7	Cobbles up to 1"
		<2mm	358.6	692.7	334.1	638.5	52.3	
5-21	GJAST-05	>2mm	561.8	915.8	354		65.3	Cobbles up to 1.5"
		<2mm	358.6	546.8	188.2	542.2	34.7	
5-22	GJAST-05	>2mm	561.8	1074.3	512.5		75.0	Cobbles up to 2"
		<2mm	358.6	529.4	170.8	683.3	25.0	
6-1	GJAST-06	>2mm	561.8	858.7	296.9		56.9	Cobbles up to 1.5"
		<2mm	358.6	583.3	224.7	521.6	43.1	
6-2	GJAST-06	>2mm	561.8	709.8	148		24.4	Gravel up to 0.75". Some pieces of concrete. A little hard dirt that didn't break down.
		<2mm	358.6	816.3	457.7	605.7	75.6	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
6-3	GJAST-06	>2mm	561.8	565.4	3.6		0.8	A few small pebbles. A lot of the +2 mm is hard dirt. Very light pressure applied to push some chunks through sieve but some remain.
		<2mm	358.6	817.6	459	462.6	99.2	
6-4	GJAST-06	>2mm	561.8	564.3	2.5		0.4	A few pebbles. A lot of rootlets.
		<2mm	358.6	972.1	613.5	616	99.6	
6-5	GJAST-06	>2mm	561.8	1230.9	669.1		63.3	Cobbles up to 2". A few roots.
		<2mm	358.6	746	387.4	1056.5	36.7	
6-6	GJAST-06	>2mm	561.8	1017.5	455.7		79.2	Cobbles up to 2". A few pieces of woody material.
		<2mm	358.6	478.6	120	575.7	20.8	
6-7	GJAST-06	>2mm	561.8	981.4	419.6		71.6	Cobbles up to 2"
		<2mm	358.6	525.4	166.8	586.4	28.4	
6-8	GJAST-06	>2mm	561.8	1126.8	565		75.7	Cobbles up to 1.5"
		<2mm	358.6	540.2	181.6	746.6	24.3	
6-9	GJAST-06	>2mm	561.8	1274.2	712.4		71.9	Cobbles up to 1.5"
		<2mm	358.6	637.5	278.9	991.3	28.1	
6-10	GJAST-06	>2mm	561.8	1186.7	624.9		68.6	Cobbles up to 2"
		<2mm	358.6	644	285.4	910.3	31.4	
6-11	GJAST-06	>2mm	561.8	1062.2	500.4		74.5	Cobbles up to 1.5"
		<2mm	358.6	530.3	171.7	672.1	25.5	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
6-12	GJAST-06	>2mm	561.8	1160.7	598.9		75.5	Cobbles up to 1.5"
		<2mm	358.6	552.8	194.2	793.1	24.5	
6-13	GJAST-06	>2mm	561.8	1164.8	603		73.5	Cobbles up to 2"
		<2mm	358.6	575.5	216.9	819.9	26.5	
6-14	GJAST-06	>2mm	561.8	1434.5	872.7		78.2	Cobbles up to 2"
		<2mm	358.6	601.8	243.2	1115.9	21.8	
6-15	GJAST-06	>2mm	561.8	1126	564.2		71.0	Cobbles up to 2"
		<2mm	358.6	589.6	231	795.2	29.0	
6-16	GJAST-06	>2mm	561.8	1026.6	464.8		76.4	Cobbles up to 2"
		<2mm	358.6	502.3	143.7	608.5	23.6	
6-17	GJAST-06	>2mm	561.8	977.1	415.3		74.2	Cobbles up to 1.5"
		<2mm	358.6	503.2	144.6	559.9	25.8	
6-18	GJAST-06	>2mm	561.8	1231	669.2		71.9	Cobbles up to 2"
		<2mm	358.6	620.2	261.6	930.8	28.1	
6-19	GJAST-06	>2mm	561.8	1194.6	632.8		76.6	Cobbles up to 2"
		<2mm	358.6	551.4	192.8	825.6	23.4	
6-20	GJAST-06	>2mm	561.8	854.8	293		51.1	Cobbles up to 1.5"
		<2mm	358.6	638.8	280.2	573.2	48.9	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
7-1	GJAST-07	>2mm	561.8	731.9	170.1		47.1	Gravel up to 0.75". A few rootlets.
		<2mm	358.6	549.3	190.7	360.8	52.9	
7-2	GJAST-07	>2mm	561.8	946.4	384.6		51.8	Cobbles up to 1.5". A few roots. A few hard dirt chunks that didn't break down.
		<2mm	358.6	716.9	358.3	742.9	48.2	
7-3	GJAST-07	>2mm	561.8	916.4	354.6		45.2	Cobbles up to 1.5"
		<2mm	358.6	789.2	430.6	785.2	54.8	
7-4	GJAST-07	>2mm	561.8	1183.9	622.1		61.9	Cobbles up to 2"
		<2mm	358.6	741.1	382.5	1004.6	38.1	
7-5	GJAST-07	>2mm	561.8	1185.2	623.4		59.3	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	786.1	427.5	1050.9	40.7	
7-6,7	GJAST-07	>2mm	561.8	1178	616.2		75.3	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	560.3	201.7	817.9	24.7	
7-8,9	GJAST-07	>2mm	561.8	964.8	403		70.6	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	526.5	167.9	570.9	29.4	
7-10,11	GJAST-07	>2mm	561.8	1345.1	783.3		74.4	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	628.5	269.9	1053.2	25.6	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
7-12,13	GJAST-07	>2mm	561.8	1306.4	744.6		77.4	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	576.5	217.9	962.5	22.6	
7-14,15	GJAST-07	>2mm	561.8	1167.6	605.8		73.6	Cobbles up to 2"
		<2mm	358.6	576.4	217.8	823.6	26.4	
7-16,17	GJAST-07	>2mm	561.8	1081.9	520.1		75.6	Cobbles up to 2"
		<2mm	358.6	526.4	167.8	687.9	24.4	
7-18,19	GJAST-07	>2mm	561.8	1240.5	678.7		69.1	Cobbles up to 1.5"
		<2mm	358.6	661.4	302.8	981.5	30.9	
7-20,21	GJAST-07	>2mm	561.8	1367.8	806		54.2	Cobbles up to 2"
		<2mm	358.6	1038.9	680.3	1486.3	45.8	
7-22,23	GJAST-07	>2mm	561.8	1169.7	607.9		60.9	Cobbles up to 2"
		<2mm	358.6	749.6	391	998.9	39.1	
7-24	GJAST-07	>2mm	561.8	1022.4	460.6		76.8	Cobbles up to 1.5". Geoprobe tagged bedrock on this sample. A piece of clay from bedrock was removed from sample prior to sieving , weighed, and bagged separately. Mass of clay = 27.6 g.
		<2mm	358.6	497.6	139	599.6	23.2	
8-1,2	GJAST-08	>2mm	561.8	922.1	360.3		48.5	Cobbles up to 1.5". A few roots.
		<2mm	358.6	741.3	382.7	743	51.5	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
8-3,4	GJAST-08	>2mm	561.8	932	370.2		57.2	Cobbles up to 2". A few small pieces of plant material.
		<2mm	358.6	635.9	277.3	647.5	42.8	
8-5,6	GJAST-08	>2mm	561.8	930.5	368.7		41.2	Cobbles up to 1.5"
		<2mm	358.6	885	526.4	895.1	58.8	
8-7	GJAST-08	>2mm	561.8	917.1	355.3		63.5	Cobbles up to 1"
		<2mm	358.6	562.8	204.2	559.5	36.5	
8-8	GJAST-08	>2mm	561.8	1036.8	475		69.7	Cobbles up to 1.5"
		<2mm	358.6	565.5	206.9	681.9	30.3	
8-9	GJAST-08	>2mm	561.8	989	427.2		74.8	Cobbles up to 1.5"
		<2mm	358.6	502.8	144.2	571.4	25.2	
8-10	GJAST-08	>2mm	561.8	1200.1	638.3		76.8	Cobbles up to 2"
		<2mm	358.6	551.3	192.7	831	23.2	
8-11	GJAST-08	>2mm	561.8	1266	704.2		70.6	Cobbles up to 2"
		<2mm	358.6	652.5	293.9	998.1	29.4	
8-12	GJAST-08	>2mm	561.8	1090.3	528.5		68.3	Cobbles up to 1.5"
		<2mm	358.6	603.6	245	773.5	31.7	
8-13	GJAST-08	>2mm	561.8	1243.2	681.4		70.3	Cobbles up to 1.5"
		<2mm	358.6	646.3	287.7	969.1	29.7	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
8-14	GJAST-08	>2mm	561.8	1129.2	567.4		73.0	Cobbles up to 1.5"
		<2mm	358.6	568.1	209.5	776.9	27.0	
8-15	GJAST-08	>2mm	561.8	907	345.2		53.7	Cobbles up to 2"
		<2mm	358.6	655.8	297.2	642.4	46.3	
8-16,17	GJAST-08	>2mm	561.8	1280.5	718.7		79.0	Cobbles up to 2"
		<2mm	358.6	549.6	191	909.7	21.0	
8-18,19	GJAST-08	>2mm	561.8	1253.8	692		81.4	Cobbles up to 1.5"
		<2mm	358.6	517.1	158.5	850.5	18.6	
8-20,21	GJAST-08	>2mm	561.8	1146	584.2		52.1	Cobbles up to 1.5"
		<2mm	358.6	896.1	537.5	1121.7	47.9	
8-22,23	GJAST-08	>2mm	561.8	1291.4	729.6		74.6	Cobbles up to 1.5"
		<2mm	358.6	606.4	247.8	977.4	25.4	
8-24	GJAST-08	>2mm	561.8	787.3	225.5		72.2	Cobbles up to 1.5". Geoprobe tagged bedrock on this sample. Pieces of clay from bedrock were removed from sample prior to sieving, weighed, and bagged separately. Mass of clay = 86.5 g.
		<2mm	358.6	445.4	86.8	312.3	27.8	
9-1	GJAST-09	>2mm	561.8	785.8	224		62.9	Gravel up to 0.75". A few rootlets.
		<2mm	358.6	490.9	132.3	356.3	37.1	
9-2	GJAST-09	>2mm	561.8	829.9	268.1		58.9	Gravel up to 0.5"
		<2mm	358.6	545.4	186.8	454.9	41.1	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
9-3	GJAST-09	>2mm	561.8	906.3	344.5		65.1	Gravel up to 0.75"
		<2mm	358.6	543.5	184.9	529.4	34.9	
9-4	GJAST-09	>2mm	561.8	926.9	365.1		54.9	Gravel up to 0.75". A few rootlets.
		<2mm	358.6	658.4	299.8	664.9	45.1	
9-5	GJAST-09	>2mm	561.8	637.8	76		14.7	Cobbles up to 1". A few rootlets.
		<2mm	358.6	799.4	440.8	516.8	85.3	
9-6	GJAST-09	>2mm	561.8	922.2	360.4		61.9	Cobbles up to 2"
		<2mm	358.6	580.1	221.5	581.9	38.1	
10a-1,2	GJAST-10A	>2mm	561.8	1004.7	442.9		48.1	Cobbles up to 1.5"
		<2mm	358.6	836.8	478.2	921.1	51.9	
10a-3,4	GJAST-10A	>2mm	561.8	1094.1	532.3		57.7	Cobbles up to 2"
		<2mm	358.6	748.4	389.8	922.1	42.3	
10-5	GJAST-10	>2mm	561.8	888.4	326.6		58.9	Cobbles up to 1". Some hard dirt that didn't break down.
		<2mm	358.6	586.2	227.6	554.2	41.1	
10-6	GJAST-10	>2mm	561.8	710.4	148.6		50.9	Cobbles up to 1". A little hard dirt that didn't break down.
		<2mm	358.6	501.8	143.2	291.8	49.1	
10-7	GJAST-10	>2mm	561.8	788.8	227		65.2	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	479.5	120.9	347.9	34.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
10-8	GJAST-10	>2mm	561.8	871.9	310.1		66.1	Cobbles up to 2". Some hard dirt that didn't break down.
		<2mm	358.6	517.9	159.3	469.4	33.9	
10-9	GJAST-10	>2mm	561.8	1152.3	590.5		71.5	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	594.2	235.6	826.1	28.5	
10-10	GJAST-10	>2mm	561.8	1152.1	590.3		62.0	Cobbles up to 1". A little hard dirt that didn't break down.
		<2mm	358.6	720.9	362.3	952.6	38.0	
10-11,12	GJAST-10	>2mm	561.8	1322.4	760.6		71.8	Cobbles up to 2". A little hard dirt that didn't break down.
		<2mm	358.6	657.8	299.2	1059.8	28.2	
10-13,14	GJAST-10	>2mm	561.8	1417.2	855.4		73.7	Cobbles up to 2"
		<2mm	358.6	664	305.4	1160.8	26.3	
10-15,16	GJAST-10	>2mm	561.8	1658	1096.2		68.6	Cobbles up to 2"
		<2mm	358.6	859.7	501.1	1597.3	31.4	
10-17,18	GJAST-10	>2mm	561.8	1496.2	934.4		70.9	Cobbles up to 2"
		<2mm	358.6	742.4	383.8	1318.2	29.1	
10-19,20	GJAST-10	>2mm	561.8	1483.7	921.9		71.3	Cobbles up to 2"
		<2mm	358.6	729.9	371.3	1293.2	28.7	
10-21	GJAST-10	>2mm	561.8	1511.2	949.4		74.1	Cobbles up to 2"
		<2mm	358.6	689.8	331.2	1280.6	25.9	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
11-1	GJAST-11	>2mm	561.8	801.4	239.6		42.5	Cobbles up to 1". Some sticks, rootlets, and other pieces of plant debris. A lot of hard dirt that didn't break down.
		<2mm	358.6	682.7	324.1	563.7	57.5	
11-2	GJAST-11	>2mm	561.8	638.2	76.4		20.9	Gravel up to 0.5". Most of +2 mm is hard dirt.
		<2mm	358.6	648.4	289.8	366.2	79.1	
11-3	GJAST-11	>2mm	561.8	727.4	165.6		48.7	Entire +2 mm is hard dirt. Very light pressure applied to push some through sieve. A few pieces of plant debris.
		<2mm	358.6	532.7	174.1	339.7	51.3	
11-4	GJAST-11	>2mm	561.8	699.6	137.8		36.5	Entire +2 mm is hard dirt. Very light pressure applied to push some through sieve. A few pieces of plant debris.
		<2mm	358.6	597.9	239.3	377.1	63.5	
11-5	GJAST-11	>2mm	561.8	568.3	6.5		1.8	A few rootlets. Most of +2 mm is hard dirt. Very light pressure applied to push some through sieve.
		<2mm	358.6	708.8	350.2	356.7	98.2	
11-6	GJAST-11	>2mm	561.8	584.2	22.4		6.2	A few rootlets. Entire +2 mm is hard dirt. Very light pressure applied to push some through sieve.
		<2mm	358.6	697.9	339.3	361.7	93.8	
11-7	GJAST-11	>2mm	561.8	608.2	46.4		13.7	Entire +2 mm is hard dirt. Very light pressure applied to push some through sieve.
		<2mm	358.6	649.8	291.2	337.6	86.3	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
11-8	GJAST-11	>2mm	561.8	631.7	69.9		17.8	Entire +2 mm is hard dirt. Very light pressure applied to push some through sieve.
		<2mm	358.6	682.3	323.7	393.6	82.2	
11-9	GJAST-11	>2mm	561.8	594.8	33		6.6	Entire +2 mm is hard dirt. Very light pressure applied to push some through sieve.
		<2mm	358.6	828.3	469.7	502.7	93.4	
11-10,11	GJAST-11	>2mm	561.8	842.2	280.4		62.4	Cobbles up to 1". Some hard dirt that didn't break down.
		<2mm	358.6	527.3	168.7	449.1	37.6	
11-12,13	GJAST-11	>2mm	561.8	805.5	243.7		66.8	Cobbles up to 1.5"
		<2mm	358.6	479.9	121.3	365	33.2	
11-14,15	GJAST-11	>2mm	561.8	983.3	421.5		67.5	Cobbles up to 1.5"
		<2mm	358.6	561.3	202.7	624.2	32.5	
11-16,17	GJAST-11	>2mm	561.8	1205.5	643.7		73.4	Cobbles up to 2"
		<2mm	358.6	591.4	232.8	876.5	26.6	
11-18,19	GJAST-11	>2mm	561.8	812.1	250.3		70.7	Cobbles up to 1.5"
		<2mm	358.6	462.5	103.9	354.2	29.3	
11-20	GJAST-11	>2mm	561.8	794.1	232.3		76.0	Cobbles up to 1.5". Geoprobe tagged bedrock on this sample. Pieces of clay from bedrock were removed from sample prior to sieving , weighed, and bagged separately. Mass of clay = 92.1 g.
		<2mm	358.6	432.1	73.5	305.8	24.0	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
12-1	GJAST-12	>2mm	561.8	842.9	281.1		56.5	Gravel up to 0.75". A few pieces of plant debris.
		<2mm	358.6	575.2	216.6	497.7	43.5	
12-2	GJAST-12	>2mm	561.8	734.5	172.7		37.5	Gravel up to 0.75"
		<2mm	358.6	645.9	287.3	460	62.5	
12-3	GJAST-12	>2mm	561.8	561.9	0.1		0.0	4 small pebbles. A few rootlets.
		<2mm	358.6	732.5	373.9	374	100.0	
12-4	GJAST-12	>2mm	561.8	561.8	0		0.0	3 small pebbles. Some rootlets. Very light pressure applied to push a few dirt chunks through sieve.
		<2mm	358.6	1063	704.4	704.4	100.0	
12-5	GJAST-12	>2mm	561.8	573.5	11.7		2.8	Gravel up to 0.5". A few roots. Some of +2 mm is hard dirt, very light pressure applied to push some small dirt chunks through sieve.
		<2mm	358.6	758.3	399.7	411.4	97.2	
12-6	GJAST-12	>2mm	561.8	605	43.2		11.8	Gravel up to 0.5". Most of +2 mm is hard dirt that didn't break down.
		<2mm	358.6	680.1	321.5	364.7	88.2	
12-7	GJAST-12	>2mm	561.8	688.9	127.1		29.2	Cobbles up to 1"
		<2mm	358.6	666.3	307.7	434.8	70.8	
12-8	GJAST-12	>2mm	561.8	778.2	216.4		73.2	Cobbles up to 1.5"
		<2mm	358.6	437.8	79.2	295.6	26.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
12-9	GJAST-12	>2mm	561.8	935.4	373.6		73.4	Cobbles up to 1.5"
		<2mm	358.6	494	135.4	509	26.6	
12-10	GJAST-12	>2mm	561.8	883.5	321.7		74.4	Cobbles up to 1"
		<2mm	358.6	469.2	110.6	432.3	25.6	
12-11,12	GJAST-12	>2mm	561.8	1024.8	463		74.0	Cobbles up to 2"
		<2mm	358.6	521.4	162.8	625.8	26.0	
12-13,14	GJAST-12	>2mm	561.8	1120.7	558.9		70.9	Cobbles up to 1.5"
		<2mm	358.6	587.5	228.9	787.8	29.1	
12-15,16	GJAST-12	>2mm	561.8	1149.7	587.9		68.8	Cobbles up to 1.5"
		<2mm	358.6	624.7	266.1	854	31.2	
12-17,18	GJAST-12	>2mm	561.8	1105.7	543.9		73.4	Cobbles up to 2"
		<2mm	358.6	556.2	197.6	741.5	26.6	
12-19,20	GJAST-12	>2mm	561.8	945.8	384		70.4	Cobbles up to 1.5". Piece of plastic from the Geoprobe = 0.3 g.
		<2mm	358.6	520	161.4	545.4	29.6	
13-1	GJAST-13	>2mm	561.8	718.4	156.6		34.6	Cobbles up to 1". Many roots. Some hard dirt that didn't break down.
		<2mm	358.6	654.8	296.2	452.8	65.4	
13-2	GJAST-13	>2mm	561.8	908.7	346.9		54.6	Cobbles up to 1.5"
		<2mm	358.6	647.4	288.8	635.7	45.4	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
13-3	GJAST-13	>2mm	561.8	998.2	436.4		54.5	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	723	364.4	800.8	45.5	
13-4	GJAST-13	>2mm	561.8	953.7	391.9		51.5	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	727.4	368.8	760.7	48.5	
13-5	GJAST-13	>2mm	561.8	949.2	387.4		56.5	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	656.8	298.2	685.6	43.5	
13-6	GJAST-13	>2mm	561.8	852.9	291.1		61.8	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	538.9	180.3	471.4	38.2	
13-7	GJAST-13	>2mm	561.8	775.5	213.7		52.8	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	549.7	191.1	404.8	47.2	
13-8	GJAST-13	>2mm	561.8	878.9	317.1		48.2	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	699.9	341.3	658.4	51.8	
13-9	GJAST-13	>2mm	561.8	981.5	419.7		63.9	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	595.3	236.7	656.4	36.1	
13-10	GJAST-13	>2mm	561.8	962.1	400.3		64.2	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	582	223.4	623.7	35.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
13-11	GJAST-13	>2mm	561.8	982.8	421		69.8	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	540.4	181.8	602.8	30.2	
13-12	GJAST-13	>2mm	561.8	894.4	332.6		68.9	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	508.6	150	482.6	31.1	
13-13	GJAST-13	>2mm	561.8	908	346.2		70.7	Cobbles up to 1.5"
		<2mm	358.6	502.4	143.8	490	29.3	
13-14	GJAST-13	>2mm	561.8	1005.5	443.7		61.8	Cobbles up to 1.5"
		<2mm	358.6	632.6	274	717.7	38.2	
13-15	GJAST-13	>2mm	561.8	1001.6	439.8		63.0	Cobbles up to 1.5"
		<2mm	358.6	617.3	258.7	698.5	37.0	
13-16	GJAST-13	>2mm	561.8	1040.9	479.1		73.0	Cobbles up to 1.5"
		<2mm	358.6	535.9	177.3	656.4	27.0	
13-17	GJAST-13	>2mm	561.8	963.8	402		74.0	Cobbles up to 2"
		<2mm	358.6	500	141.4	543.4	26.0	
13-18	GJAST-13	>2mm	561.8	913.5	351.7		68.9	Cobbles up to 1.5"
		<2mm	358.6	517	158.4	510.1	31.1	
13-19	GJAST-13	>2mm	561.8	994.2	432.4		68.7	Cobbles up to 1.5"
		<2mm	358.6	555.5	196.9	629.3	31.3	
13-20	GJAST-13	>2mm	561.8	829.8	268		53.2	Cobbles up to 1.5"
		<2mm	358.6	594.4	235.8	503.8	46.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
13-21	GJAST-13	>2mm	561.8	996.6	434.8		84.1	Cobbles up to 2"
		<2mm	358.6	441	82.4	517.2	15.9	
13-22	GJAST-13	>2mm	561.8	995.9	434.1		75.6	Cobbles up to 1.5"
		<2mm	358.6	498.4	139.8	573.9	24.4	
13-23	GJAST-13	>2mm	561.8	1222.4	660.6		69.3	Cobbles up to 2". Geoprobe tagged bedrock on this sample. Pieces of clay from bedrock were removed from sample prior to sieving, weighed, and bagged separately. Mass of clay = 17.2 g.
		<2mm	358.6	651.4	292.8	953.4	30.7	
14-1	GJAST-14	>2mm	561.8	804.6	242.8		49.6	Cobbles up to 1.5". A little hard dirt that didn't break down. Some plant material.
		<2mm	358.6	605.2	246.6	489.4	50.4	
14-2	GJAST-14	>2mm	561.8	796.7	234.9		58.1	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	528.3	169.7	404.6	41.9	
14-3	GJAST-14	>2mm	561.8	754.1	192.3		36.3	Gravel up to 0.75". Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	696.4	337.8	530.1	63.7	
14-4	GJAST-14	>2mm	561.8	670	108.2		18.9	Gravel up to 0.5". Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	823.3	464.7	572.9	81.1	
14-5	GJAST-14	>2mm	561.8	593.4	31.6		8.4	A few pebbles. Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	703.2	344.6	376.2	91.6	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
14-6	GJAST-14	>2mm	561.8	629.1	67.3		25.6	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	553.7	195.1	262.4	74.4	
14-7	GJAST-14	>2mm	561.8	614	52.2		21.4	Gravel up to 0.5". Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	550	191.4	243.6	78.6	
14-8	GJAST-14	>2mm	561.8	625.5	63.7		25.9	A few pebbles. Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	541.1	182.5	246.2	74.1	
14-9	GJAST-14	>2mm	561.8	647	85.2		28.3	A few pebbles. Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	574.9	216.3	301.5	71.7	
14-10	GJAST-14	>2mm	561.8	692.2	130.4		30.1	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	662.1	303.5	433.9	69.9	
14-11,12	GJAST-14	>2mm	561.8	872.1	310.3		68.4	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	502.1	143.5	453.8	31.6	
14-13,14	GJAST-14	>2mm	561.8	1095.2	533.4		73.3	Cobbles up to 1.5"
		<2mm	358.6	553	194.4	727.8	26.7	
14-15,16	GJAST-14	>2mm	561.8	1527.7	965.9		71.4	Cobbles up to 2"
		<2mm	358.6	744.8	386.2	1352.1	28.6	
14-17,18	GJAST-14	>2mm	561.8	1137.6	575.8		73.3	Cobbles up to 2"
		<2mm	358.6	568.8	210.2	786	26.7	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
14-19,20	GJAST-14	>2mm	561.8	1009.6	447.8		43.2	Cobbles up to 1.5"
		<2mm	358.6	946.6	588	1035.8	56.8	
14-21	GJAST-14	>2mm	561.8	1397.5	835.7		73.2	Cobbles up to 2"
		<2mm	358.6	664.8	306.2	1141.9	26.8	
15-1	GJAST-15	>2mm	561.8	888.3	326.5		50.3	Cobbles up to 1". A little hard dirt that didn't break down.
		<2mm	358.6	680.9	322.3	648.8	49.7	
15-2	GJAST-15	>2mm	561.8	779.8	218		42.0	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	660.2	301.6	519.6	58.0	
15-3	GJAST-15	>2mm	561.8	753.3	191.5		36.3	Few pebbles. Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	695	336.4	527.9	63.7	
15-4	GJAST-15	>2mm	561.8	584.2	22.4		5.0	Entire +2mm is hard dirt that didn't break down. Very light pressure applied to push some chunks through sieve.
		<2mm	358.6	787.3	428.7	451.1	95.0	
15-5	GJAST-15	>2mm	561.8	561.8	0		0.0	All of +2mm was dirt chunks. Very light pressure applied to push it thorough sieve.
		<2mm	358.6	868.8	510.2	510.2	100.0	
15-6	GJAST-15	>2mm	561.8	592.8	31		7.2	A few roots. Entire +2mm is hard dirt that didn't break down. Very light pressure applied to push some through sieve.
		<2mm	358.6	758.7	400.1	431.1	92.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
15-7	GJAST-15	>2mm	561.8	562.6	0.8		0.2	Entire +2mm is hard dirt that didn't break down. Very light pressure applied to push some through sieve.
		<2mm	358.6	840.3	481.7	482.5	99.8	
15-8	GJAST-15	>2mm	561.8	573.6	11.8		2.4	A few pebbles. Most of +2mm is hard dirt that didn't break down.
		<2mm	358.6	839.9	481.3	493.1	97.6	
15-9	GJAST-15	>2mm	561.8	777	215.2		34.5	Entire +2mm is hard dirt that didn't break down.
		<2mm	358.6	766.8	408.2	623.4	65.5	
15-10	GJAST-15	>2mm	561.8	741.2	179.4		36.6	Entire +2mm is hard dirt that didn't break down.
		<2mm	358.6	669.7	311.1	490.5	63.4	
15-11	GJAST-15	>2mm	561.8	616	54.2		12.2	A few pebbles. Most of +2mm is hard dirt that didn't break down. Very light pressure applied to push some through sieve.
		<2mm	358.6	749.6	391	445.2	87.8	
15-12	GJAST-15	>2mm	561.8	675.9	114.1		25.1	Entire +2mm is hard dirt that didn't break down. Very light pressure applied to push some through sieve. Some plant material.
		<2mm	358.6	699.3	340.7	454.8	74.9	
15-13	GJAST-15	>2mm	561.8	562.2	0.4		0.1	A few pebbles. Very light pressure applied to push dirt chunks through sieve. Reduced smell. Some plant material.
		<2mm	358.6	736.5	377.9	378.3	99.9	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
15-14	GJAST-15	>2mm	561.8	694.5	132.7		33.4	A lot of black woody material. Reduced smell. Entire +2 mm is hard dirt and plant material. Large wood chunks = 7.5 g.
		<2mm	358.6	622.8	264.2	396.9	66.6	
15-15,16	GJAST-15	>2mm	561.8	1071.2	509.4		50.9	Cobbles up to 2". Some black woody material = 2.5 g.
		<2mm	358.6	850.3	491.7	1001.1	49.1	
15-17,18	GJAST-15	>2mm	561.8	939.9	378.1		74.6	Cobbles up to 2"
		<2mm	358.6	487.1	128.5	506.6	25.4	
15-19,20	GJAST-15	>2mm	561.8	1033.3	471.5		70.4	Cobbles up to 1.5"
		<2mm	358.6	557.3	198.7	670.2	29.6	
16-1	GJAST-16	>2mm	561.8	741.7	179.9		35.6	Cobbles up to 1.5". A lot of roots and other plant materials. 0.5 g removed prior to sieving.
		<2mm	358.6	684.1	325.5	505.4	64.4	
16-2	GJAST-16	>2mm	561.8	819.3	257.5		59.5	Cobbles up to 2"
		<2mm	358.6	534.2	175.6	433.1	40.5	
16-3	GJAST-16	>2mm	561.8	961.2	399.4		59.7	Cobbles up to 1.5". A few roots.
		<2mm	358.6	628.7	270.1	669.5	40.3	
16-4	GJAST-16	>2mm	561.8	941.3	379.5		60.9	Cobbles up to 1.5"
		<2mm	358.6	602.3	243.7	623.2	39.1	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
16-5	GJAST-16	>2mm	561.8	910.7	348.9		49.6	Cobbles up to 1.5"
		<2mm	358.6	713.6	355	703.9	50.4	
16-6,7	GJAST-16	>2mm	561.8	807.7	245.9		54.7	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	562.4	203.8	449.7	45.3	
16-8,9	GJAST-16	>2mm	561.8	911	349.2		68.0	Cobbles up to 1". A lot of hard dirt that didn't break down.
		<2mm	358.6	523.1	164.5	513.7	32.0	
16-10,11	GJAST-16	>2mm	561.8	1019.9	458.1		66.7	Cobbles up to 2". Some hard dirt that didn't break down.
		<2mm	358.6	587.8	229.2	687.3	33.3	
16-12,13	GJAST-16	>2mm	561.8	1211	649.2		66.6	Cobbles up to 2". A little hard dirt that didn't break down.
		<2mm	358.6	684.7	326.1	975.3	33.4	
16-14,15	GJAST-16	>2mm	561.8	1117.3	555.5		71.8	Cobbles up to 1.5"
		<2mm	358.6	577.3	218.7	774.2	28.2	
16-16,17	GJAST-16	>2mm	561.8	999.1	437.3		69.7	Cobbles up to 2"
		<2mm	358.6	548.6	190	627.3	30.3	
16-18,19	GJAST-16	>2mm	561.8	1132.8	571		73.6	Cobbles up to 2"
		<2mm	358.6	563	204.4	775.4	26.4	
16-20,20.5	GJAST-16	>2mm	561.8	1355.1	793.3		74.1	Cobbles up to 2"
		<2mm	358.6	635.7	277.1	1070.4	25.9	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
17-1	GJAST-17	>2mm	561.8	819	257.2		45.7	Cobbles up to 1"
		<2mm	358.6	663.9	305.3	562.5	54.3	
17-2	GJAST-17	>2mm	561.8	878.5	316.7		46.5	Cobbles up to 1"
		<2mm	358.6	722.9	364.3	681	53.5	
17-3	GJAST-17	>2mm	561.8	913.1	351.3		50.7	Cobbles up to 1.5"
		<2mm	358.6	700.5	341.9	693.2	49.3	
17-4	GJAST-17	>2mm	561.8	806.3	244.5		44.7	Cobbles up to 1.5"
		<2mm	358.6	661.6	303	547.5	55.3	
17-5	GJAST-17	>2mm	561.8	752.7	190.9		46.2	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	580.8	222.2	413.1	53.8	
17-6	GJAST-17	>2mm	561.8	977.1	415.3		57.8	Cobbles up to 2". A little hard dirt that didn't break down.
		<2mm	358.6	661.3	302.7	718	42.2	
17-7	GJAST-17	>2mm	561.8	811.3	249.5		60.1	Cobbles up to 1.5"
		<2mm	358.6	524.2	165.6	415.1	39.9	
17-8	GJAST-17	>2mm	561.8	772.7	210.9		48.7	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	581	222.4	433.3	51.3	
17-9	GJAST-17	>2mm	561.8	951	389.2		56.0	Cobbles up to 2". A little hard dirt that didn't break down.
		<2mm	358.6	665	306.4	695.6	44.0	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
17-10	GJAST-17	>2mm	561.8	1021.7	459.9		67.6	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	578.8	220.2	680.1	32.4	
17-11,12	GJAST-17	>2mm	561.8	1492.7	930.9		69.5	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	767.8	409.2	1340.1	30.5	
17-13,14	GJAST-17	>2mm	561.8	990.3	428.5		67.7	Cobbles up to 1.5"
		<2mm	358.6	562.6	204	632.5	32.3	
17-15,16	GJAST-17	>2mm	561.8	1253.6	691.8		73.2	Cobbles up to 2"
		<2mm	358.6	611.7	253.1	944.9	26.8	
17-17,18	GJAST-17	>2mm	561.8	1393	831.2		75.6	Cobbles up to 2"
		<2mm	358.6	626.7	268.1	1099.3	24.4	
17-19,20	GJAST-17	>2mm	561.8	1218.2	656.4		67.6	Cobbles up to 1.5"
		<2mm	358.6	672.5	313.9	970.3	32.4	
17-21,22	GJAST-17	>2mm	561.8	1531	969.2		56.9	Cobbles up to 2"
		<2mm	358.6	1091.7	733.1	1702.3	43.1	
17-23,24	GJAST-17	>2mm	561.8	1218	656.2		66.7	Cobbles up to 2"
		<2mm	358.6	686.1	327.5	983.7	33.3	
18-1	GJAST-18	>2mm	561.8	641.2	79.4		19.6	Cobbles up to 1.5". Many roots.
		<2mm	358.6	683.3	324.7	404.1	80.4	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
18-2	GJAST-18	>2mm	561.8	916.6	354.8		53.1	Cobbles up to 1.5"
		<2mm	358.6	671.7	313.1	667.9	46.9	
18-3	GJAST-18	>2mm	561.8	917.7	355.9		54.9	Cobbles up to 2"
		<2mm	358.6	651.5	292.9	648.8	45.1	
18-4	GJAST-18	>2mm	561.8	1128.2	566.4		54.1	Cobbles up to 2". A little hard dirt that didn't break down. A couple pieces of woody plant material = 2.2 g.
		<2mm	358.6	839.8	481.2	1047.6	45.9	
18-5	GJAST-18	>2mm	561.8	970.5	408.7		48.8	Cobbles up to 1.5". Some hard dirt that didn't break down. A few large roots = 1 g.
		<2mm	358.6	787.9	429.3	838	51.2	
18-6	GJAST-18	>2mm	561.8	966.9	405.1		58.6	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	644.8	286.2	691.3	41.4	
18-7	GJAST-18	>2mm	561.8	980.7	418.9		53.5	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	722.3	363.7	782.6	46.5	
18-8	GJAST-18	>2mm	561.8	903.8	342		57.6	Cobbles up to 1.5". A little hard dirt that didn't break down.
		<2mm	358.6	610.7	252.1	594.1	42.4	
18-9	GJAST-18	>2mm	561.8	967.1	405.3		68.1	Cobbles up to 2". Some hard dirt that didn't break down.
		<2mm	358.6	548.6	190	595.3	31.9	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
18-10	GJAST-18	>2mm	561.8	1288.5	726.7		63.9	Cobbles up to 2". A lot of hard dirt that didn't break down.
		<2mm	358.6	769.6	411	1137.7	36.1	
18-11,12	GJAST-18	>2mm	561.8	1420.9	859.1		68.0	Cobbles up to 2". Some hard dirt that didn't break down.
		<2mm	358.6	762.3	403.7	1262.8	32.0	
18-13,14	GJAST-18	>2mm	561.8	1295.1	733.3		68.6	Cobbles up to 1.5"
		<2mm	358.6	694	335.4	1068.7	31.4	
18-15	GJAST-18	>2mm	561.8	844.9	283.1		39.4	Cobbles up to 2"
		<2mm	358.6	793.4	434.8	717.9	60.6	
18-16	GJAST-18	>2mm	561.8	1125.8	564		51.2	Cobbles up to 1.5"
		<2mm	358.6	895.7	537.1	1101.1	48.8	
18-17	GJAST-18	>2mm	561.8	1172.4	610.6		69.2	Cobbles up to 2"
		<2mm	358.6	630.1	271.5	882.1	30.8	
18-18	GJAST-18	>2mm	561.8	1201.3	639.5		65.9	Cobbles up to 2"
		<2mm	358.6	689	330.4	969.9	34.1	
18-19	GJAST-18	>2mm	561.8	1227.1	665.3		73.0	Cobbles up to 2"
		<2mm	358.6	604.7	246.1	911.4	27.0	
18-20	GJAST-18	>2mm	561.8	1140.2	578.4		68.5	Cobbles up to 2"
		<2mm	358.6	625.1	266.5	844.9	31.5	
18-21	GJAST-18	>2mm	561.8	1302.7	740.9		77.3	Cobbles up to 2"
		<2mm	358.6	575.9	217.3	958.2	22.7	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
19-1	GJAST-19	>2mm	561.8	595.5	33.7		11.0	A few pebbles. Most of +2 mm is hard dirt that didn't break down. Many rootlet and plant materials.
		<2mm	358.6	631.9	273.3	307	89.0	
19-2	GJAST-19	>2mm	561.8	1010.3	448.5		51.7	Cobbles up to 1.5". Few rootlets
		<2mm	358.6	778.2	419.6	868.1	48.3	
19-3	GJAST-19	>2mm	561.8	858.4	296.6		43.1	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	750.9	392.3	688.9	56.9	
19-4	GJAST-19	>2mm	561.8	575	13.2		1.6	Some pebbles. A lot of +2 mm is hard dirt.
		<2mm	358.6	1145.6	787	800.2	98.4	
19-5	GJAST-19	>2mm	561.8	625.4	63.6		12.9	A few pebbles. Most of +2 mm is hard dirt.
		<2mm	358.6	787.6	429	492.6	87.1	
19-6	GJAST-19	>2mm	561.8	806.4	244.6		40.4	Entire +2 mm is hard dirt.
		<2mm	358.6	719.7	361.1	605.7	59.6	
19-7	GJAST-19	>2mm	561.8	574.3	12.5		2.6	Entire +2 mm is hard dirt.
		<2mm	358.6	833.6	475	487.5	97.4	
19-8	GJAST-19	>2mm	561.8	721.2	159.4		31.6	Gravel up to 0.75". Most of +2 mm is hard dirt. A few roots.
		<2mm	358.6	703.8	345.2	504.6	68.4	
19-9	GJAST-19	>2mm	561.8	860.4	298.6		46.7	Cobbles up to 1" Most of +2 mm is hard dirt. Large pieces of woody material = 6.0 g.
		<2mm	358.6	699.9	341.3	639.9	53.3	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
19-10	GJAST-19	>2mm	561.8	1262.1	700.3		66.1	Cobbles up to 2"; large piece of woody material = 1.4 g.
		<2mm	358.6	718.1	359.5	1059.8	33.9	
19-11,12	GJAST-19	>2mm	561.8	1398.2	836.4		70.9	Cobbles up to 2"
		<2mm	358.6	701.7	343.1	1179.5	29.1	
19-13,14	GJAST-19	>2mm	561.8	1316.6	754.8		75.1	Cobbles up to 2"
		<2mm	358.6	608.8	250.2	1005	24.9	
19-15,16	GJAST-19	>2mm	561.8	1638.1	1076.3		74.5	Cobbles up to 2"
		<2mm	358.6	727.9	369.3	1445.6	25.5	
19-17,18	GJAST-19	>2mm	561.8	1167.7	605.9		72.4	Cobbles up to 1.5"
		<2mm	358.6	589.6	231	836.9	27.6	
19-19,20	GJAST-19	>2mm	561.8	1095.3	533.5		77.3	Cobbles up to 2"
		<2mm	358.6	515.6	157	690.5	22.7	
20-1	GJAST-20	>2mm	561.8	627.9	66.1		19.4	Cobbles up to 1.5". A little hard dirt that didn't break down. Few rootlets and other plant materials.
		<2mm	358.6	634	275.4	341.5	80.6	
20-2	GJAST-20	>2mm	561.8	868.2	306.4		56.1	Cobbles up to 2"
		<2mm	358.6	598.3	239.7	546.1	43.9	
20-3	GJAST-20	>2mm	561.8	859.3	297.5		50.3	Cobbles up to 1.5"
		<2mm	358.6	652.3	293.7	591.2	49.7	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
20-4	GJAST-20	>2mm	561.8	1015.8	454		49.7	Cobbles up to 2"
		<2mm	358.6	817.7	459.1	913.1	50.3	
20-5	GJAST-20	>2mm	561.8	1022.8	461		51.5	Cobbles up to 1.5". Some hard dirt that didn't break down.
		<2mm	358.6	792.5	433.9	894.9	48.5	
20-6	GJAST-20	>2mm	561.8	1068.3	506.5		58.6	Cobbles up to 2". A little hard dirt that didn't break down.
		<2mm	358.6	716.7	358.1	864.6	41.4	
20-7	GJAST-20	>2mm	561.8	955.5	393.7		53.4	Cobbles up to 1.5"
		<2mm	358.6	702.2	343.6	737.3	46.6	
20-8	GJAST-20	>2mm	561.8	880	318.2		52.1	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	651.7	293.1	611.3	47.9	
20-9	GJAST-20	>2mm	561.8	1201.7	639.9		57.2	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	838	479.4	1119.3	42.8	
20-10	GJAST-20	>2mm	561.8	1144	582.2		63.4	Cobbles up to 1.5". A lot of hard dirt that didn't break down.
		<2mm	358.6	694.9	336.3	918.5	36.6	
20-11,12	GJAST-20	>2mm	561.8	1537.8	976		72.3	Cobbles up to 2"
		<2mm	358.6	733.4	374.8	1350.8	27.7	
20-13,14	GJAST-20	>2mm	561.8	1357.2	795.4		75.9	Cobbles up to 2"
		<2mm	358.6	610.8	252.2	1047.6	24.1	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
20-15,16	GJAST-20	>2mm	561.8	1211.8	650		69.6	Cobbles up to 2"
		<2mm	358.6	642.5	283.9	933.9	30.4	
20-17,18	GJAST-20	>2mm	561.8	1206.9	645.1		75.6	Cobbles up to 2"
		<2mm	358.6	566.5	207.9	853	24.4	
20-19,20	GJAST-20	>2mm	561.8	2098.1	1536.3		73.7	Cobbles up to 2"
		<2mm	358.6	906	547.4	2083.7	26.3	
21-1	GJAST-21	>2mm	561.8	613.5	51.7		18.2	Cobbles up to 1.5". Some hard dirt that didn't break down. Some roots and other plant materials.
		<2mm	358.6	590.7	232.1	283.8	81.8	
21-2	GJAST-21	>2mm	561.8	863.9	302.1		58.8	Cobbles up to 1.5". A few roots.
		<2mm	358.6	570.7	212.1	514.2	41.2	
21-3	GJAST-21	>2mm	561.8	1092.6	530.8		55.0	Cobbles up to 1.5"
		<2mm	358.6	792.9	434.3	965.1	45.0	
21-4	GJAST-21	>2mm	561.8	841.6	279.8		28.0	Cobbles up to 1". Some hard dirt that didn't break down.
		<2mm	358.6	1079.1	720.5	1000.3	72.0	
21-5	GJAST-21	>2mm	561.8	579.8	18		3.0	Few stones. Some hard dirt that didn't break down. Very light pressure applied to push some through sieve. A few roots.
		<2mm	358.6	943	584.4	602.4	97.0	
21-6	GJAST-21	>2mm	561.8	1104.8	543		66.2	Cobbles up to 1.5"
		<2mm	358.6	635.4	276.8	819.8	33.8	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
21-7	GJAST-21	>2mm	561.8	827.4	265.6		53.5	Cobbles up to 1.5"
		<2mm	358.6	589.4	230.8	496.4	46.5	
21-8	GJAST-21	>2mm	561.8	937	375.2		59.0	Cobbles up to 1.5"
		<2mm	358.6	619.1	260.5	635.7	41.0	
21-9	GJAST-21	>2mm	561.8	1004.8	443		72.0	Cobbles up to 1.5". A few roots.
		<2mm	358.6	531.2	172.6	615.6	28.0	
21-10	GJAST-21	>2mm	561.8	1070.2	508.4		67.6	Cobbles up to 1.5". A few roots.
		<2mm	358.6	602.3	243.7	752.1	32.4	
21-11,12	GJAST-21	>2mm	561.8	1394.4	832.6		71.9	Cobbles up to 2"
		<2mm	358.6	683.9	325.3	1157.9	28.1	
21-13,14	GJAST-21	>2mm	561.8	1391.5	829.7		73.4	Cobbles up to 2"
		<2mm	358.6	659.3	300.7	1130.4	26.6	
21-15,16	GJAST-21	>2mm	561.8	1728.8	1167		74.4	Cobbles up to 2"
		<2mm	358.6	759.6	401	1568	25.6	
21-17,18	GJAST-21	>2mm	561.8	1363.1	801.3		72.7	Cobbles up to 2"
		<2mm	358.6	658.8	300.2	1101.5	27.3	
21-19,20	GJAST-21	>2mm	561.8	1598.7	1036.9		65.4	Cobbles up to 2"
		<2mm	358.6	907.2	548.6	1585.5	34.6	
21-21	GJAST-21	>2mm	561.8	1115	553.2		70.4	Cobbles up to 2"
		<2mm	358.6	591.3	232.7	785.9	29.6	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
22-1	GJAST-22	>2mm	561.8	723.1	161.3		37.2	Cobbles up to 2". A little hard dirt that didn't break down. Some roots = 0.4 g.
		<2mm	358.6	630.4	271.8	433.1	62.8	
22-2	GJAST-22	>2mm	561.8	716.5	154.7		28.0	Cobbles up to 1". Some hard dirt that didn't break down.
		<2mm	358.6	756.8	398.2	552.9	72.0	
22-3	GJAST-22	>2mm	561.8	616.8	55		11.8	A few pebbles. Most of +2 mm is hard dirt.
		<2mm	358.6	770.1	411.5	466.5	88.2	
22-4	GJAST-22	>2mm	561.8	561.8	0		0.0	A few pebbles. Very light pressure applied to push dirt chunks through sieve.
		<2mm	358.6	905.6	547	547	100.0	
22-5	GJAST-22	>2mm	561.8	608.7	46.9		5.6	A few pebbles. Most of +2 mm is hard dirt.
		<2mm	358.6	1150.1	791.5	838.4	94.4	
22-6	GJAST-22	>2mm	561.8	571.1	9.3		2.2	Gravel up to 0.5"
		<2mm	358.6	773.5	414.9	424.2	97.8	
22-7	GJAST-22	>2mm	561.8	562	0.2		0.0	A few pebbles. A few roots.
		<2mm	358.6	819.1	460.5	460.7	100.0	
22-8	GJAST-22	>2mm	561.8	736.4	174.6		33.4	Cobbles up to 1.5"
		<2mm	358.6	706.4	347.8	522.4	66.6	
22-9	GJAST-22	>2mm	561.8	997.1	435.3		52.7	Cobbles up to 1.5"
		<2mm	358.6	748.6	390	825.3	47.3	

Table B-2. Data for Sieving Less Than 2 Millimeter Size Fraction (continued)

Field Sample Number	Field Boring Number	Sieve	Sieve Mass (g)	Gross Mass (g)	Net Mass (g)	Total Mass (g)	Percent of Total Soil Mass	Comments
22-10	GJAST-22	>2mm	561.8	1061.3	499.5		64.6	Cobbles up to 1.5"
		<2mm	358.6	632.1	273.5	773	35.4	
22-11,12	GJAST-22	>2mm	561.8	1272.5	710.7		71.1	Cobbles up to 2"
		<2mm	358.6	648	289.4	1000.1	28.9	
22-13,14	GJAST-22	>2mm	561.8	1613.6	1051.8		74.2	Cobbles up to 2"
		<2mm	358.6	724.9	366.3	1418.1	25.8	
22-15,16	GJAST-22	>2mm	561.8	1708.3	1146.5		70.1	Cobbles up to 2"
		<2mm	358.6	848.6	490	1636.5	29.9	
22-17,18	GJAST-22	>2mm	561.8	1328.4	766.6		71.1	Cobbles up to 2"
		<2mm	358.6	670.1	311.5	1078.1	28.9	
22-19,20	GJAST-22	>2mm	561.8	1631.4	1069.6		75.1	Cobbles up to 2"
		<2mm	358.6	713.6	355	1424.6	24.9	
22-21	GJAST-22	>2mm	561.8	1572.5	1010.7		65.9	Cobbles up to 2"
		<2mm	358.6	880.6	522	1532.7	34.1	

Note:

Second value in field sample number, depth in feet.

Abbreviations:

g = grams

mm = millimeters

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Appendix C

Selective Extraction Data

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Table C-1. Carbonate Extractions

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
1-1	GJAST-01	4569.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	8.5	0.17			
1-2	GJAST-01	4568.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	67.1	1.34			
1-3	GJAST-01	4567.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	82.6	1.65			
1-4	GJAST-01	4566.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	62.5	1.25			
1-5	GJAST-01	4565.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	71.2	1.42			
1-6	GJAST-01	4564.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	70.9	1.42			
1-7	GJAST-01	4563.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	73.5	1.47			
1-8	GJAST-01	4562.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	80.8	1.62			
1-9	GJAST-01	4561.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	87.5	1.75			
1-10	GJAST-01	4560.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	61.4	1.23			
1-11	GJAST-01	4559.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	63.4	1.27			
1-12	GJAST-01	4558.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	58.1	1.16			
1-13	GJAST-01	4557.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	42.5	0.85			
1-17	GJAST-01	4553.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	21.3	0.43			
1-19	GJAST-01	4551.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	10.8	0.22			
1-23	GJAST-01	4547.25	2.00	40	50	11/15/2012 10:28	12/6/12 6:55	20.85	14.8	0.30			
2-1	GJAST-02	4568.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	4.3	0.09			
2-2	GJAST-02	4567.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	2.5	0.05			
2-3	GJAST-02	4566.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	23.4	0.47			
2-4	GJAST-02	4565.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	42.9	0.86			
2-5	GJAST-02	4564.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	27.5	0.55			
2-6	GJAST-02	4563.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	22.5	0.45			
2-7	GJAST-02	4562.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	29.1	0.58			
2-8	GJAST-02	4561.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	16	0.32			
2-9	GJAST-02	4560.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	11.1	0.22			
2-10	GJAST-02	4559.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	39.2	0.78			
2-11	GJAST-02	4558.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	29.3	0.59			
2-12	GJAST-02	4557.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	33.1	0.66			
2-13	GJAST-02	4556.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	28.9	0.58			
2-14	GJAST-02	4555.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	34.5	0.69			
2-15	GJAST-02	4554.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	27.4	0.55			
2-16	GJAST-02	4553.69	2.00	40	50	11/15/2012 10:39	12/6/12 7:20	20.86	16.1	0.32			
2-17	GJAST-02	4552.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	8.3	0.17			
2-18	GJAST-02	4551.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	6.4	0.13			
2-19	GJAST-02	4550.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	6.5	0.13			
2-20	GJAST-02	4549.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	9.5	0.19			
2-21	GJAST-02	4548.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	17.7	0.35			
2-22	GJAST-02	4547.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	16.3	0.33			
2-23	GJAST-02	4546.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	15.2	0.30			
2-24	GJAST-02	4545.69	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	90.8	1.82			U confirmed

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
3-1	GJAST-03	4569.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	13.2	0.26			
3-2	GJAST-03	4568.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	8.7	0.17			
3-3	GJAST-03	4567.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	16.9	0.34			
3-4	GJAST-03	4566.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	36.7	0.73			
3-5	GJAST-03	4565.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	35.8	0.72			
3-6	GJAST-03	4564.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	24.1	0.48			
3-7	GJAST-03	4563.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	16.6	0.33			
3-8	GJAST-03	4562.49	2.00	40	50	11/15/2012 10:49	12/6/12 8:30	20.90	8.1	0.16			
3-9	GJAST-03	4561.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	16.1	0.32			
3-9 dup	GJAST-03	4561.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	14.5	0.29			
3-10	GJAST-03	4560.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	26.3	0.53			
3-11	GJAST-03	4559.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	35.5	0.71			
3-12	GJAST-03	4558.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	31.3	0.63			
3-13	GJAST-03	4557.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	27.5	0.55			
3-14	GJAST-03	4556.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	38.9	0.78			
3-15	GJAST-03	4555.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	22	0.44			
3-15 dup	GJAST-03	4555.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	19.3	0.39			
3-16	GJAST-03	4554.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	6.6	0.13			
3-17	GJAST-03	4553.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	5.4	0.11			
3-18	GJAST-03	4552.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	5.6	0.11			
3-19	GJAST-03	4551.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	4.7	0.09			
3-20	GJAST-03	4550.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	4.2	0.08			
3-21	GJAST-03	4549.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	8.9	0.18			
3-21 dup	GJAST-03	4549.49	2.00	40	50	11/21/2012 9:44	12/12/12 6:30	20.87	8.1	0.16			
3-22	GJAST-03	4548.49	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	11.7	0.23			
3-23	GJAST-03	4547.49	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	7.2	0.14			
3-24	GJAST-03	4546.49	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	5.9	0.12			
4-1	GJAST-04	4569.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	6.6	0.13			
4-2	GJAST-04	4568.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	43.2	0.86			
4-3	GJAST-04	4567.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	49.3	0.99			
4-3 dup	GJAST-04	4567.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	58.8	1.18			
4-4	GJAST-04	4566.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	53	1.06			
4-5	GJAST-04	4565.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	151.9	3.04			
4-6	GJAST-04	4564.18	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	104.3	2.09			
5-1	GJAST-05	4569.21	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	9.8	0.20			
5-2	GJAST-05	4568.21	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	13.4	0.27			
5-3	GJAST-05	4567.21	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	20.5	0.41			
5-3 dup	GJAST-05	4567.21	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	22.5	0.45			
5-4	GJAST-05	4566.21	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	44.3	0.89			
5-5	GJAST-05	4565.21	2.00	40	50	11/21/2012 9:53	12/12/12 7:11	20.89	9.6	0.19			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
5-6	GJAST-05	4564.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	6.2	0.12			
5-7	GJAST-05	4563.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	6.5	0.13			
5-8	GJAST-05	4562.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	25.9	0.52			
5-9	GJAST-05	4561.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	22.8	0.45			
5-10	GJAST-05	4560.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	55.8	1.12			
5-11	GJAST-05	4559.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	62.7	1.25			
5-12	GJAST-05	4558.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	41.6	0.83			
5-13	GJAST-05	4557.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	27	0.54			
5-14	GJAST-05	4556.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	22	0.44			
5-15	GJAST-05	4555.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	9.4	0.19			
5-16	GJAST-05	4554.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	7	0.14			
5-17	GJAST-05	4553.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	6	0.12			
5-18	GJAST-05	4552.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	5.4	0.11			
5-19	GJAST-05	4551.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	5.5	0.11			
5-20	GJAST-05	4550.21	2.00	40	50	12/6/2012 11:07	12/27/12 8:05	20.87	8.1	0.16			
5-20 dup	GJAST-05	4550.21	2.01	40	50.25	12/6/2012 11:07	12/27/12 8:05	20.87	8.2	0.16			
5-21	GJAST-05	4549.21	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	6.6	0.13			
5-22	GJAST-05	4548.21	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	7.2	0.14			
6-1	GJAST-06	4569.29	2.01	40	50.25	12/6/2012 11:15	12/27/12 8:45	20.90	4	0.08			
6-2	GJAST-06	4568.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	31.8	0.64			
6-3	GJAST-06	4567.29	2.01	40	50.25	12/6/2012 11:15	12/27/12 8:45	20.90	122	2.43			
6-4	GJAST-06	4566.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	159	3.18			
6-5	GJAST-06	4565.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	119	2.38			
6-6	GJAST-06	4564.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	118	2.36			
6-7	GJAST-06	4563.29	2.01	40	50.25	12/6/2012 11:15	12/27/12 8:45	20.90	47.6	0.95			
6-8	GJAST-06	4562.29	2.01	40	50.25	12/6/2012 11:15	12/27/12 8:45	20.90	37.8	0.75			
6-9	GJAST-06	4561.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	22.2	0.44			
6-10	GJAST-06	4560.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	31	0.62			
6-11	GJAST-06	4559.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	49.9	1.00			
6-12	GJAST-06	4558.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	40.8	0.82			
6-13	GJAST-06	4557.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	20.7	0.41			
6-13 dup	GJAST-06	4557.29	2.00	40	50	12/6/2012 11:15	12/27/12 8:45	20.90	20.7	0.41			
6-14	GJAST-06	4556.29	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	16.9	0.34			
6-15	GJAST-06	4555.29	2.01	40	50.25	12/6/2012 11:20	12/27/12 9:20	20.92	8.8	0.18			
6-16	GJAST-06	4554.29	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	7.9	0.16			
6-17	GJAST-06	4553.29	2.01	40	50.25	12/6/2012 11:20	12/27/12 9:20	20.92	4.9	0.10			
6-18	GJAST-06	4552.29	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	5.4	0.11			
6-19	GJAST-06	4551.29	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	5.2	0.10			
6-20	GJAST-06	4550.29	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	8.1	0.16			
7-1	GJAST-07	4568.78	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	6.2	0.12			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
7-2	GJAST-07	4567.78	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	10.3	0.21			
7-3	GJAST-07	4566.78	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	52.2	1.04			
7-4	GJAST-07	4565.78	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	52.2	1.04			
7-5	GJAST-07	4564.78	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	70.6	1.41			
7-6,7	GJAST-07	4563.28	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	52.9	1.06			
7-8,9	GJAST-07	4561.28	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	75.5	1.51			
7-10,11	GJAST-07	4559.28	2.01	40	50.25	12/6/2012 11:20	12/27/12 9:20	20.92	123	2.45			
7-10,11 dup	GJAST-07	4559.28	2.00	40	50	12/6/2012 11:20	12/27/12 9:20	20.92	127	2.54			
7-12,13	GJAST-07	4557.28	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	122.5	2.45			
7-14,15	GJAST-07	4555.28	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	130.3	2.61			
7-16,17	GJAST-07	4553.28	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	39.1	0.78			
7-18,19	GJAST-07	4551.28	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	17	0.34			
7-20,21	GJAST-07	4549.28	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	14.6	0.29			
7-22,23	GJAST-07	4547.28	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	18.5	0.37			
7-24	GJAST-07	4545.78	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	33.5	0.67			
8-1,2	GJAST-08	4568.91	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	48.6	0.97			
8-3,4	GJAST-08	4566.91	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	54.3	1.08			
8-5,6	GJAST-08	4564.91	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	50.7	1.01			
8-7	GJAST-08	4563.41	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	109.5	2.19			
8-8	GJAST-08	4562.41	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	57.8	1.16			
8-9	GJAST-08	4561.41	2.00	40	50	12/12/2012 9:22	1/2/13 8:35	20.97	64.3	1.29			
8-10	GJAST-08	4560.41	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	79.8	1.59			
8-11	GJAST-08	4559.41	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	89.6	1.78			
8-11 dup	GJAST-08	4559.41	2.01	40	50.25	12/12/2012 9:22	1/2/13 8:35	20.97	93.3	1.86			
8-12	GJAST-08	4558.41	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	62.2	1.24			
8-13	GJAST-08	4557.41	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	54.8	1.10			
8-14	GJAST-08	4556.41	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	47.2	0.94			
8-15	GJAST-08	4555.41	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	36.2	0.72			
8-16,17	GJAST-08	4553.91	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	27.7	0.55			
8-18,19	GJAST-08	4551.91	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	23.1	0.46			
8-20,21	GJAST-08	4549.91	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	16.7	0.33			
8-22,23	GJAST-08	4547.91	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	20.6	0.41			
8-24	GJAST-08	4546.41	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	18.6	0.37			
9-1	GJAST-09	4569.67	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	5.4	0.11			
9-2	GJAST-09	4568.67	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	5.9	0.12			
9-3	GJAST-09	4567.67	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	4.2	0.08			
9-4	GJAST-09	4566.67	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	12.8	0.25			
9-5	GJAST-09	4565.67	2.00	40	50	12/12/2012 9:30	1/2/13 9:10	20.99	95.7	1.91			
9-6	GJAST-09	4564.67	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	76.2	1.52			
9-6 dup	GJAST-09	4564.67	2.01	40	50.25	12/12/2012 9:30	1/2/13 9:10	20.99	76.6	1.52			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
10a-1,2	GJAST-10a	4567.41	1.99	40	49.75	12/27/2012 14:15	1/17/13 7:10	20.70	15.7	0.32			
10a-3,4	GJAST-10a	4565.41	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	58.1	1.16			
10-5	GJAST-10	4563.53	2.00	40	50	12/27/2012 14:15	1/17/13 7:10	20.70	59.8	1.20			
10-6	GJAST-10	4562.53	1.99	40	49.75	12/27/2012 14:15	1/17/13 7:10	20.70	57.5	1.16			
10-7	GJAST-10	4561.53	2.00	40	50	12/27/2012 14:15	1/17/13 7:10	20.70	64.2	1.28			
10-8	GJAST-10	4560.53	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	55.6	1.11			
10-9	GJAST-10	4559.53	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	57.4	1.14			
10-10	GJAST-10	4558.53	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	43.1	0.86			
10-11,12	GJAST-10	4557.03	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	39.7	0.79			
10-13,14	GJAST-10	4555.03	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	30.7	0.61			
10-15,16	GJAST-10	4553.03	2.00	40	50	12/27/2012 14:15	1/17/13 7:10	20.70	23	0.46			
10-17,18	GJAST-10	4551.03	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	14	0.28			
10-19,20	GJAST-10	4549.03	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	17.6	0.35			
10-21	GJAST-10	4547.53	2.01	40	50.25	12/27/2012 14:15	1/17/13 7:10	20.70	17.3	0.34			
11-1	GJAST-11	4567.64	2.00	40	50	12/27/2012 14:15	1/17/13 7:10	20.70	7.9	0.16			
11-1 dup	GJAST-11	4567.64	2.00	40	50	12/27/2012 14:15	1/17/13 7:10	20.70	8.4	0.17			
11-2	GJAST-11	4566.64	2.00	40	50	12/27/2012 14:24	1/17/13 7:45	20.72	62.7	1.25			
11-3	GJAST-11	4565.64	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	166.3	3.31			
11-4	GJAST-11	4564.64	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	250.4	4.98			
11-5	GJAST-11	4563.64	2.00	40	50	12/27/2012 14:24	1/17/13 7:45	20.72	92.5	1.85			
11-6	GJAST-11	4562.64	2.00	40	50	12/27/2012 14:24	1/17/13 7:45	20.72	124.9	2.50			
11-7	GJAST-11	4561.64	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	92.9	1.85			
11-8	GJAST-11	4560.64	2.00	40	50	12/27/2012 14:24	1/17/13 7:45	20.72	75.2	1.50			
11-9	GJAST-11	4559.64	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	32.9	0.65			
11-10,11	GJAST-11	4558.14	2.00	40	50	12/27/2012 14:24	1/17/13 7:45	20.72	49	0.98			
11-12,13	GJAST-11	4556.14	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	26.6	0.53			
11-14,15	GJAST-11	4554.14	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	17.2	0.34			
11-16,17	GJAST-11	4552.14	1.99	40	49.75	12/27/2012 14:24	1/17/13 7:45	20.72	11.2	0.23			
11-18,19	GJAST-11	4550.14	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	13.6	0.27			
11-20	GJAST-11	4548.64	2.00	40	50	12/27/2012 14:24	1/17/13 7:45	20.72	15	0.30			
12-1	GJAST-12	4567.71	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	5.5	0.11			
12-1 dup	GJAST-12	4567.71	2.01	40	50.25	12/27/2012 14:24	1/17/13 7:45	20.72	5.3	0.11			
12-2	GJAST-12	4566.71	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	6.4	0.13			
12-3	GJAST-12	4565.71	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	8.5	0.17			
12-4	GJAST-12	4564.71	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	9.4	0.19			
12-5	GJAST-12	4563.71	1.99	40	49.75	12/27/2012 14:34	1/17/13 8:22	20.74	11.5	0.23			
12-6	GJAST-12	4562.71	2.00	40	50	12/27/2012 14:34	1/17/13 8:22	20.74	13.3	0.27			
12-7	GJAST-12	4561.71	2.00	40	50	12/27/2012 14:34	1/17/13 8:22	20.74	32.8	0.66			
12-8	GJAST-12	4560.71	2.00	40	50	12/27/2012 14:34	1/17/13 8:22	20.74	5.6	0.11			
12-9	GJAST-12	4559.71	2.00	40	50	12/27/2012 14:34	1/17/13 8:22	20.74	9.7	0.19			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
12-10	GJAST-12	4558.71	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	33.1	0.66			
12-11,12	GJAST-12	4557.21	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	39.5	0.79			
12-13,14	GJAST-12	4555.21	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	18.7	0.37			
12-15,16	GJAST-12	4553.21	1.99	40	49.75	12/27/2012 14:34	1/17/13 8:22	20.74	12.5	0.25			
12-17,18	GJAST-12	4551.21	2.00	40	50	12/27/2012 14:34	1/17/13 8:22	20.74	16.4	0.33			
12-19,20	GJAST-12	4549.21	1.99	40	49.75	12/27/2012 14:34	1/17/13 8:22	20.74	21.7	0.44			
13-1	GJAST-13	4567.33	2.00	40	50	12/27/2012 14:34	1/17/13 8:22	20.74	22.3	0.45			
13-1 dup	GJAST-13	4567.33	2.01	40	50.25	12/27/2012 14:34	1/17/13 8:22	20.74	22.5	0.45			
13-2	GJAST-13	4566.33	1.99	40	49.75	1/2/2013 11:04	1/23/13 9:20	20.93	24.1	0.48			
13-3	GJAST-13	4565.33	2.01	40	50.25	1/2/2013 11:04	1/23/13 9:20	20.93	19.8	0.39			
13-4	GJAST-13	4564.33	2.01	40	50.25	1/2/2013 11:04	1/23/13 9:20	20.93	22.6	0.45			
13-5	GJAST-13	4563.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	24.7	0.49			
13-6	GJAST-13	4562.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	51.4	1.03			
13-7	GJAST-13	4561.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	64.5	1.29			
13-8	GJAST-13	4560.33	1.99	40	49.75	1/2/2013 11:04	1/23/13 9:20	20.93	64.8	1.30			
13-9	GJAST-13	4559.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	72.3	1.45			
13-10	GJAST-13	4558.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	54.2	1.08			
13-11	GJAST-13	4557.33	1.99	40	49.75	1/2/2013 11:04	1/23/13 9:20	20.93	50	1.01			
13-12	GJAST-13	4556.33	2.01	40	50.25	1/2/2013 11:04	1/23/13 9:20	20.93	82.4	1.64			
13-13	GJAST-13	4555.33	2.01	40	50.25	1/2/2013 11:04	1/23/13 9:20	20.93	18.7	0.37			
13-14	GJAST-13	4554.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	20.7	0.41			
13-15	GJAST-13	4553.33	1.99	40	49.75	1/2/2013 11:04	1/23/13 9:20	20.93	20.4	0.41			
13-16	GJAST-13	4552.33	2.00	40	50	1/2/2013 11:04	1/23/13 9:20	20.93	21.6	0.43			
13-16 dup	GJAST-13	4552.33	2.01	40	50.25	1/2/2013 11:04	1/23/13 9:20	20.93	21.8	0.43			
13-17	GJAST-13	4551.33	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	19.5	0.39			
13-18	GJAST-13	4550.33	1.99	40	49.75	1/2/2013 11:15	1/23/13 9:50	20.94	30.1	0.61			
13-19	GJAST-13	4549.33	2.01	40	50.25	1/2/2013 11:15	1/23/13 9:50	20.94	22.8	0.45			
13-20	GJAST-13	4548.33	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	23	0.46			
13-21	GJAST-13	4547.33	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	30.9	0.62			
13-22	GJAST-13	4546.33	2.01	40	50.25	1/2/2013 11:15	1/23/13 9:50	20.94	19.1	0.38			
13-23	GJAST-13	4545.33	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	21.9	0.44			
14-1	GJAST-14	4567.48	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	11.7	0.23			
14-2	GJAST-14	4566.48	2.01	40	50.25	1/2/2013 11:15	1/23/13 9:50	20.94	60.3	1.20			
14-3	GJAST-14	4565.48	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	96.2	1.92			
14-4	GJAST-14	4564.48	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	84.7	1.69			
14-5	GJAST-14	4563.48	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	169.2	3.38			
14-6	GJAST-14	4562.48	2.01	40	50.25	1/2/2013 11:15	1/23/13 9:50	20.94	278.2	5.54			
14-7	GJAST-14	4561.48	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	333.9	6.68	0.22	4.32	
14-8	GJAST-14	4560.48	2.00	40	50	1/2/2013 11:15	1/23/13 9:50	20.94	326.3	6.53	0.25	4.90	
14-8 dup	GJAST-14	4560.48	2.01	40	50.25	1/2/2013 11:15	1/23/13 9:50	20.94	319.4	6.36	0.23	4.64	

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
14-9	GJAST-14	4559.48	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	322.2	6.44	0.51	10.1	
14-10	GJAST-14	4558.48	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	248.9	4.98			
14-11,12	GJAST-14	4556.98	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	84.1	1.68			
14-13,14	GJAST-14	4554.98	2.01	40	50.25	1/17/2013 11:05	2/7/13 7:55	20.87	18.7	0.37			
14-15,16	GJAST-14	4552.98	2.01	40	50.25	1/17/2013 11:05	2/7/13 7:55	20.87	17.7	0.35			
14-17,18	GJAST-14	4550.98	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	17.8	0.36			
14-19,20	GJAST-14	4548.98	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	14.5	0.29	1.78	35.6	
14-21	GJAST-14	4547.48	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	17.9	0.36			
15-1	GJAST-15	4567.92	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	5.6	0.11			
15-2	GJAST-15	4566.92	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	7.6	0.15			
15-3	GJAST-15	4565.92	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	19.6	0.39			
15-4	GJAST-15	4564.92	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	16.9	0.34			
15-5	GJAST-15	4563.92	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	4.6	0.09			
15-6	GJAST-15	4562.92	2.01	40	50.25	1/17/2013 11:05	2/7/13 7:55	20.87	20.8	0.41			
15-7	GJAST-15	4561.92	2.01	40	50.25	1/17/2013 11:05	2/7/13 7:55	20.87	9	0.18			
15-7 dup	GJAST-15	4561.92	2.00	40	50	1/17/2013 11:05	2/7/13 7:55	20.87	8.4	0.17			
15-8	GJAST-15	4560.92	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	12.6	0.25			Brown ppt. after acidification
15-9	GJAST-15	4559.92	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	31.4	0.63			Brown ppt. after acidification
15-10	GJAST-15	4558.92	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	45	0.90			Brown ppt. after acidification
15-11	GJAST-15	4557.92	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	52.4	1.05			Brown ppt. after acidification
15-12	GJAST-15	4556.92	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	99.4	1.98			Brown ppt. after acidification
15-13	GJAST-15	4555.92	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	213.3	4.27	16.70	334	Brown ppt. after acidification
15-14	GJAST-15	4554.92	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	138.4	2.75			Brown ppt. after acidification
15-15,16	GJAST-15	4553.42	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	152.9	3.04			Brown ppt. after acidification
15-17,18	GJAST-15	4551.42	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	20.3	0.41			
15-19,20	GJAST-15	4549.42	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	18.3	0.36			
16-1	GJAST-16	4566.7	1.99	40	49.75	1/17/2013 11:23	2/7/13 9:25	20.92	26.3	0.53			
16-2	GJAST-16	4565.7	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	32.3	0.64			
16-3	GJAST-16	4564.7	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	22.1	0.44			
16-4	GJAST-16	4563.7	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	19.2	0.38			
16-5	GJAST-16	4562.7	2.01	40	50.25	1/17/2013 11:23	2/7/13 9:25	20.92	33.4	0.66			
16-5 dup	GJAST-16	4562.7	2.00	40	50	1/17/2013 11:23	2/7/13 9:25	20.92	30.8	0.62			
16-6,7	GJAST-16	4561.2	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	27.2	0.54			
16-8,9	GJAST-16	4559.2	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	73.8	1.47			
16-10,11	GJAST-16	4557.2	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	64.6	1.29			
16-12,13	GJAST-16	4555.2	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	162.1	3.24			
16-14,15	GJAST-16	4553.2	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	116.3	2.31			
16-16,17	GJAST-16	4551.2	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	16.9	0.34			
16-18,19	GJAST-16	4549.2	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	28.4	0.57			
16-20,20.5	GJAST-16	4547.45	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	22.9	0.46			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
17-1	GJAST-17	4567.26	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	7.2	0.14			
17-2	GJAST-17	4566.26	2.01	40	50.25	1/17/2013 11:30	2/7/13 11:25	21.00	10.4	0.21			
17-3	GJAST-17	4565.26	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	58	1.16			
17-4	GJAST-17	4564.26	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	34.9	0.70			
17-5	GJAST-17	4563.26	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	118	2.36			
17-6	GJAST-17	4562.26	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	89.9	1.80			
17-7	GJAST-17	4561.26	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	91.1	1.82			
17-7 dup	GJAST-17	4561.26	2.00	40	50	1/17/2013 11:30	2/7/13 11:25	21.00	88.9	1.78			
17-8	GJAST-17	4560.26	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	74.6	1.48			
17-9	GJAST-17	4559.26	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	59.7	1.19			
17-10	GJAST-17	4558.26	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	84.4	1.68			
17-11,12	GJAST-17	4556.76	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	53.7	1.07			
17-13,14	GJAST-17	4554.76	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	29	0.58			
17-15,16	GJAST-17	4552.76	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	22.4	0.45			
17-17,18	GJAST-17	4550.76	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	25.7	0.51			
17-19,20	GJAST-17	4548.76	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	36.1	0.72			
17-21,22	GJAST-17	4546.76	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	29.9	0.60			
17-23,24	GJAST-17	4544.76	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	14.2	0.28			
18-1	GJAST-18	4566.72	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	25.3	0.51			
18-2	GJAST-18	4565.72	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	24.8	0.50			
18-3	GJAST-18	4564.72	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	45	0.90			
18-4	GJAST-18	4563.72	2.01	40	50.25	1/23/2013 12:45	2/13/13 7:55	20.80	22.5	0.45			
18-5	GJAST-18	4562.72	2.00	40	50	1/23/2013 12:45	2/13/13 7:55	20.80	102	2.04			
18-5 dup	GJAST-18	4562.72	1.99	40	49.75	1/23/2013 12:45	2/13/13 7:55	20.80	101.6	2.04			
18-6	GJAST-18	4561.72	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	65.7	1.31			
18-7	GJAST-18	4560.72	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	47	0.94			
18-8	GJAST-18	4559.72	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	46.8	0.93			
18-9	GJAST-18	4558.72	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	43.3	0.87			
18-10	GJAST-18	4557.72	1.99	40	49.75	1/23/2013 12:53	2/13/13 8:25	20.81	64.7	1.30			
18-11,12	GJAST-18	4556.22	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	70.2	1.40			
18-13,14	GJAST-18	4554.22	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	90.6	1.80			
18-15	GJAST-18	4552.72	1.99	40	49.75	1/23/2013 12:53	2/13/13 8:25	20.81	22.3	0.45			
18-16	GJAST-18	4551.72	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	22.2	0.44			
18-17	GJAST-18	4550.72	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	29.9	0.60			
18-18	GJAST-18	4549.72	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	20.5	0.41			
18-19	GJAST-18	4548.72	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	24.8	0.50			
18-20	GJAST-18	4547.72	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	18.2	0.36			
18-21	GJAST-18	4546.72	2.01	40	50.25	1/23/2013 12:53	2/13/13 8:25	20.81	15	0.30			
19-1	GJAST-19	4567.28	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	7.8	0.16			
19-1 dup	GJAST-19	4567.28	2.00	40	50	1/23/2013 12:53	2/13/13 8:25	20.81	7.7	0.15			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
19-2	GJAST-19	4566.28	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	17.3	0.35			
19-3	GJAST-19	4565.28	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	33.5	0.67			
19-4	GJAST-19	4564.28	2.01	40	50.25	1/23/2013 13:00	2/13/13 9:10	20.84	23.6	0.47			
19-5	GJAST-19	4563.28	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	73.6	1.47			
19-6	GJAST-19	4562.28	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	254.1	5.08	0.157	3.14	
19-7	GJAST-19	4561.28	2.01	40	50.25	1/23/2013 13:00	2/13/13 9:10	20.84	87.5	1.74			
19-8	GJAST-19	4560.28	2.01	40	50.25	1/23/2013 13:00	2/13/13 9:10	20.84	222.9	4.44	2.05	40.8	
19-9	GJAST-19	4559.28	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	206.9	4.14	0.744	14.9	
19-10	GJAST-19	4558.28	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	93.2	1.86			
19-11,12	GJAST-19	4556.78	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	76.9	1.54			
19-13,14	GJAST-19	4554.78	1.99	40	49.75	1/23/2013 13:00	2/13/13 9:10	20.84	14.8	0.30			
19-15,16	GJAST-19	4552.78	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	18.6	0.37	1.38	27.6	
19-17,18	GJAST-19	4550.78	2.00	40	50	1/23/2013 13:00	2/13/13 9:10	20.84	35.6	0.71			
19-19,20	GJAST-19	4548.78	2.01	40	50.25	1/23/2013 13:00	2/13/13 9:10	20.84	29.5	0.59			
20-1	GJAST-20	4567.16	2.01	40	50.25	1/23/2013 13:00	2/13/13 9:10	20.84	12.6	0.25			
20-1 dup	GJAST-20	4567.16	2.01	40	50.25	1/23/2013 13:00	2/13/13 9:10	20.84	11.6	0.23			
20-2	GJAST-20	4566.16	2.01	40	50.25	2/7/2013 13:20	2/28/13 7:45	20.77	36	0.72			
20-3	GJAST-20	4565.16	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	32.6	0.65			
20-4	GJAST-20	4564.16	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	64.7	1.29			
20-5	GJAST-20	4563.16	2.01	40	50.25	2/7/2013 13:20	2/28/13 7:45	20.77	73.1	1.45			
20-6	GJAST-20	4562.16	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	93.7	1.87			
20-7	GJAST-20	4561.16	1.99	40	49.75	2/7/2013 13:20	2/28/13 7:45	20.77	70.9	1.43			
20-8	GJAST-20	4560.16	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	72.3	1.45			
20-9	GJAST-20	4559.16	1.99	40	49.75	2/7/2013 13:20	2/28/13 7:45	20.77	175.7	3.53	0.003	0.06	
20-10	GJAST-20	4558.16	2.01	40	50.25	2/7/2013 13:20	2/28/13 7:45	20.77	301.9	6.01	0.002	0.04	
20-11,12	GJAST-20	4556.66	2.01	40	50.25	2/7/2013 13:20	2/28/13 7:45	20.77	327.8	6.52	0.97	19.3	
20-13,14	GJAST-20	4554.66	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	151.9	3.04			
20-15,16	GJAST-20	4552.66	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	191.1	3.82	0.468	9.36	
20-17,18	GJAST-20	4550.66	2.01	40	50.25	2/7/2013 13:20	2/28/13 7:45	20.77	112.8	2.24			
20-19,20	GJAST-20	4548.66	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	45.4	0.91			
21-1	GJAST-21	4566.7	2.00	40	50	2/7/2013 13:20	2/28/13 7:45	20.77	12.6	0.25			
21-1 dup	GJAST-21	4566.7	2.01	40	50.25	2/7/2013 13:20	2/28/13 7:45	20.77	12.6	0.25			
21-2	GJAST-21	4565.7	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	30.7	0.61			
21-3	GJAST-21	4564.7	1.99	40	49.75	2/7/2013 13:37	2/28/13 8:17	20.78	68.5	1.38			
21-4	GJAST-21	4563.7	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	105.4	2.11			
21-5	GJAST-21	4562.7	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	120.8	2.40			
21-6	GJAST-21	4561.7	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	62.7	1.25			
21-7	GJAST-21	4560.7	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	33.4	0.67			
21-8	GJAST-21	4559.7	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	49.5	0.99			
21-9	GJAST-21	4558.7	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	91	1.81			

Table C-1. Carbonate Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Ratio weight/volume (g/L)	Lab Start (Date/Time)	Lab End (Date/Time)	Shake Duration (Days)	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
21-10	GJAST-21	4557.7	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	74.5	1.48			
21-11,12	GJAST-21	4556.2	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	48.1	0.96			
21-13,14	GJAST-21	4554.2	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	42.1	0.84			
21-15,16	GJAST-21	4552.2	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	38.4	0.77			
21-17,18	GJAST-21	4550.2	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	28.5	0.57			
21-19,20	GJAST-21	4548.2	2.01	40	50.25	2/7/2013 13:37	2/28/13 8:17	20.78	24	0.48			
21-21	GJAST-21	4546.7	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	23.8	0.48			
21-21 dup	GJAST-21	4546.7	2.00	40	50	2/7/2013 13:37	2/28/13 8:17	20.78	26.9	0.54			
22-1	GJAST-22	4566.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	36.3	0.73			
22-2	GJAST-22	4565.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	80	1.60			
22-3	GJAST-22	4564.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	87.7	1.75			
22-4	GJAST-22	4563.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	42	0.84			
22-5	GJAST-22	4562.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	41.3	0.83			
22-6	GJAST-22	4561.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	44.5	0.89			
22-7	GJAST-22	4560.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	23.1	0.46			
22-8	GJAST-22	4559.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	34.6	0.69			
22-9	GJAST-22	4558.84	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	25.4	0.51			
22-10	GJAST-22	4557.84	1.99	40	49.75	2/7/2013 13:46	2/28/13 8:50	20.79	32	0.64			
22-11,12	GJAST-22	4556.34	2.01	40	50.25	2/7/2013 13:46	2/28/13 8:50	20.79	48.8	0.97			
22-13,14	GJAST-22	4554.34	2.01	40	50.25	2/7/2013 13:46	2/28/13 8:50	20.79	30.6	0.61			
22-15,16	GJAST-22	4552.34	2.01	40	50.25	2/7/2013 13:46	2/28/13 8:50	20.79	27.1	0.54			
22-17,18	GJAST-22	4550.34	2.00	40	50	2/7/2013 13:46	2/28/13 8:50	20.79	31.8	0.64			
22-19,20	GJAST-22	4548.34	1.99	40	49.75	2/7/2013 13:46	2/28/13 8:50	20.79	37.3	0.75			
22-19,20 dup	GJAST-22	4548.34	2.01	40	50.25	2/7/2013 13:46	2/28/13 8:50	20.79	35.3	0.70			
22-21,22	GJAST-22	4546.34	2.01	40	50.25	2/7/2013 13:46	2/28/13 8:50	20.79	40.5	0.81			
20-10	GJAST-20	4558.16	2.000	40	50	12/17/2013 9:00	1/7/14 8:10	20.97	540	10.8			-230 size fraction
20-10 dup	GJAST-20	4558.16	2.000	40	50	12/17/2013 9:00	1/7/14 8:10	20.97	529	10.6			-230 size fraction

Note:
The number after the dash in the field sample number is depth in feet below ground surface. (For example, “1-9” is a sample at 9 feet deep for boring GJAST-01).

Abbreviations:
dup = duplicate
ft amsl = feet above mean sea level
g = grams
g/L = grams per liter
µg/g = micrograms per gram
µg/L = micrograms per liter
mg/L = milligrams per liter
mL = milliliter
ppt. = precipitate

Table C-2. 5% Nitric Acid Extractions

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
1-1	GJAST-01	4569.25	1.00	100	1/9/2013	11.9	1.19	10.9	1.09	2.12	212			
1-2	GJAST-01	4568.25	1.00	100	1/9/2013	24.1	2.41	16.1	1.61	1.65	165			
1-3	GJAST-01	4567.25	1.00	100	1/9/2013	44.7	4.47	18.4	1.84	1.66	166			
1-4	GJAST-01	4566.25	1.01	100	1/9/2013	34.5	3.42	11.7	1.16	1.27	126			
1-5	GJAST-01	4565.25	1.01	100	1/9/2013	39.4	3.90	17.8	1.76	1.35	134			
1-6	GJAST-01	4564.25	1.01	100	1/9/2013	37.1	3.67	19.5	1.93	1.22	121			
1-7	GJAST-01	4563.25	1.00	100	1/9/2013	34.9	3.49	14.6	1.46	1.22	122			
1-8	GJAST-01	4562.25	1.00	100	1/9/2013	42.6	4.26	24.6	2.46	1.12	112			
1-9	GJAST-01	4561.25	1.00	100	1/9/2013	43.1	4.31	14.7	1.47	1.38	138			
1-10	GJAST-01	4560.25	1.01	100	1/9/2013	34.9	3.46	15.4	1.52	1.32	131			
1-11	GJAST-01	4559.25	1.01	100	1/9/2013	26.8	2.65	21.3	2.11	1.65	163			
1-12	GJAST-01	4558.25	1.00	100	1/9/2013	12.9	1.29	32.5	3.25	2.51	251			
1-13	GJAST-01	4557.25	1.00	100	1/9/2013	15.3	1.53	32.1	3.21	1.86	186			
1-17	GJAST-01	4553.25	1.01	100	1/9/2013	15.5	1.53	5.0	0.50	0.75	74			
1-19	GJAST-01	4551.25	1.01	100	1/9/2013	13.4	1.33	108	10.7	0.79	78			
1-19 dup	GJAST-01	4551.25	1.00	100	1/9/2013	11.4	1.14	6.9	0.69	0.73	73			
1-23	GJAST-01	4547.25	1.01	100	1/9/2013	21.2	2.10	20.1	1.99	1.11	110			
2-1	GJAST-02	4568.69	1.00	100	1/9/2013	3.9	0.39	5.2	0.52	2.20	220			
2-2	GJAST-02	4567.69	1.00	100	1/9/2013	3.4	0.34	15.5	1.55	2.04	204			
2-3	GJAST-02	4566.69	1.01	100	1/9/2013	13	1.29	8.1	0.80	2.43	241			
2-4	GJAST-02	4565.69	1.01	100	1/9/2013	17	1.68	5.9	0.58	2.23	221			
2-5	GJAST-02	4564.69	1.00	100	1/9/2013	9.4	0.94	10.3	1.03	1.14	114			
2-6	GJAST-02	4563.69	1.00	100	1/9/2013	7.1	0.71	9.0	0.90	1.12	112			
2-7	GJAST-02	4562.69	1.01	100	1/9/2013	6	0.59	10.5	1.04	1.20	119			
2-8	GJAST-02	4561.69	1.01	100	1/10/2013	6.2	0.61	9.9	0.98	1.18	117			
2-9	GJAST-02	4560.69	1.01	100	1/10/2013	3.9	0.39	12.7	1.26	1.26	125			
2-10	GJAST-02	4559.69	1.00	100	1/10/2013	13	1.30	11.4	1.14	1.55	155			
2-11	GJAST-02	4558.69	1.01	100	1/10/2013	11.2	1.11	20.3	2.01	1.58	156			
2-12	GJAST-02	4557.69	1.00	100	1/10/2013	9.3	0.93	15.3	1.53	1.97	197			
2-13	GJAST-02	4556.69	1.00	100	1/10/2013	7.5	0.75	9.2	0.92	1.63	163			
2-14	GJAST-02	4555.69	1.00	100	1/10/2013	12	1.20	9.0	0.90	0.80	80			
2-14 dup	GJAST-02	4555.69	1.00	100	1/10/2013	9.3	0.93	8.4	0.84	0.85	85			
2-15	GJAST-02	4554.69	1.01	100	1/10/2013	8.6	0.85	49.8	4.93	0.96	95			
2-16	GJAST-02	4553.69	1.00	100	1/10/2013	6.1	0.61	16.2	1.62	0.92	92			
2-17	GJAST-02	4552.69	1.01	100	1/10/2013	4.4	0.44	24.4	2.42	0.78	77			
2-18	GJAST-02	4551.69	1.00	100	1/10/2013	3.9	0.39	6.6	0.66	0.94	94			
2-19	GJAST-02	4550.69	1.00	100	1/10/2013	4.8	0.48	22.0	2.20	0.87	87			
2-20	GJAST-02	4549.69	1.01	100	1/10/2013	6.4	0.63	7.7	0.76	1.03	102			
2-21	GJAST-02	4548.69	0.99	100	1/10/2013	7.4	0.75	5.0	0.51	1.68	170			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
2-22	GJAST-02	4547.69	1.01	100	1/10/2013	7	0.69	5.4	0.53	1.44	143			
2-23	GJAST-02	4546.69	1.01	100	1/10/2013	6.1	0.60	5.0	0.50	1.20	119			
2-24	GJAST-02	4545.69	1.00	100	1/10/2013	24.2	2.42	7.4	0.74	0.90	90			
3-1	GJAST-03	4569.49	1.00	100	1/10/2013	5.4	0.54	5.0	0.50	2.00	200			
3-2	GJAST-03	4568.49	1.00	100	1/10/2013	3.6	0.36	6.0	0.60	1.89	189			
3-3	GJAST-03	4567.49	1.01	100	1/10/2013	7.8	0.77	13.5	1.34	1.99	197			
3-4	GJAST-03	4566.49	1.00	100	1/10/2013	9	0.90	36.2	3.62	1.91	191			
3-5	GJAST-03	4565.49	0.99	100	1/10/2013	8.1	0.82	5.3	0.54	1.41	142			
3-5 dup	GJAST-03	4565.49	1.00	100	1/10/2013	8.4	0.84	11.0	1.10	1.48	148			
3-6	GJAST-03	4564.49	1.00	100	1/11/2013	6.3	0.63	12.6	1.26	1.06	106			
3-7	GJAST-03	4563.49	0.99	100	1/11/2013	4.4	0.44	27.2	2.75	1.22	123			
3-8	GJAST-03	4562.49	1.01	100	1/11/2013	3.7	0.37	9.0	0.89	1.21	120			
3-9	GJAST-03	4561.49	0.99	100	1/11/2013	6.3	0.64	11.4	1.15	1.25	126			
3-10	GJAST-03	4560.49	1.01	100	1/11/2013	8.7	0.86	34.6	3.43	1.45	144			
3-11	GJAST-03	4559.49	1.00	100	1/11/2013	10	1.00	14.1	1.41	1.54	154			
3-12	GJAST-03	4558.49	1.00	100	1/11/2013	9.1	0.91	24.3	2.43	1.75	175			
3-13	GJAST-03	4557.49	1.01	100	1/11/2013	8.7	0.86	10.7	1.06	1.25	124			
3-14	GJAST-03	4556.49	1.01	100	1/11/2013	11.4	1.13	26.6	2.63	1.51	150			
3-15	GJAST-03	4555.49	1.01	100	1/11/2013	7.5	0.74	46.1	4.56	1.96	194			
3-16	GJAST-03	4554.49	1.01	100	1/11/2013	8.7	0.86	9.6	0.95	0.97	96			
3-17	GJAST-03	4553.49	1.00	100	1/11/2013	2.9	0.29	6.2	0.62	0.80	80			
3-18	GJAST-03	4552.49	1.00	100	1/11/2013	2.7	0.27	7.0	0.70	0.84	84			
3-19	GJAST-03	4551.49	1.01	100	1/11/2013	3.1	0.31	5.7	0.56	0.85	84			
3-20	GJAST-03	4550.49	1.00	100	1/11/2013	3.2	0.32	21.4	2.14	1.01	101			
3-20 dup	GJAST-03	4550.49	1.00	100	1/11/2013	2.6	0.26	11.8	1.18	1.12	112			
3-21	GJAST-03	4549.49	1.01	100	1/11/2013	5.2	0.51	10.0	0.99	1.65	163			
3-22	GJAST-03	4548.49	1.01	100	1/11/2013	6.2	0.61	8.4	0.83	1.46	145			
3-23	GJAST-03	4547.49	1.00	100	1/11/2013	4.3	0.43	9.2	0.92	1.22	122			
3-24	GJAST-03	4546.49	0.99	100	1/11/2013	4	0.40	5.5	0.56	2.09	211			
4-1	GJAST-04	4569.18	0.99	100	1/11/2013	14.1	1.42	5.5	0.56	2.14	216			
4-2	GJAST-04	4568.18	1.00	100	1/11/2013	22	2.20	23.9	2.39	1.36	136			
4-3	GJAST-04	4567.18	1.00	100	1/11/2013	26.6	2.66	32.8	3.28	1.85	185			
4-4	GJAST-04	4566.18	0.99	100	1/11/2013	25.1	2.54	14.0	1.41	1.17	118			
4-5	GJAST-04	4565.18	1.00	100	1/14/2013	46.2	4.62	17.7	1.77	1.55	155			
4-6	GJAST-04	4564.18	1.00	100	1/14/2013	32.3	3.23	33.1	3.31	1.88	188			
5-1	GJAST-05	4569.21	1.01	100	1/14/2013	4.6	0.46	21.5	2.13	1.84	182			
5-2	GJAST-05	4568.21	1.00	100	1/14/2013	5.2	0.52	5.0	0.50	1.70	170			
5-3	GJAST-05	4567.21	1.01	100	1/14/2013	8.2	0.81	5.0	0.50	1.80	178			
5-4	GJAST-05	4566.21	1.00	100	1/14/2013	10.8	1.08	5.0	0.50	1.59	159			
5-5	GJAST-05	4565.21	0.99	100	1/14/2013	4.4	0.44	9.8	0.99	1.40	141			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
5-5 dup	GJAST-05	4565.21	1.00	100	1/14/2013	4.5	0.45	8.6	0.86	1.47	147			
5-6	GJAST-05	4564.21	1.01	100	1/14/2013	3.4	0.34	15.3	1.51	1.48	147			
5-7	GJAST-05	4563.21	1.01	100	1/14/2013	2.7	0.27	7.4	0.73	1.67	165			
5-8	GJAST-05	4562.21	1.01	100	1/14/2013	8.5	0.84	6.3	0.62	1.34	133			
5-9	GJAST-05	4561.21	1.00	100	1/14/2013	7.2	0.72	9.4	0.94	1.44	144			
5-10	GJAST-05	4560.21	1.00	100	1/14/2013	14.8	1.48	27.2	2.72	1.76	176			
5-11	GJAST-05	4559.21	1.00	100	1/14/2013	17.8	1.78	10.3	1.03	1.09	109			
5-12	GJAST-05	4558.21	1.00	100	1/14/2013	12.5	1.25	9.8	0.98	1.53	153			
5-13	GJAST-05	4557.21	1.01	100	1/14/2013	7.9	0.78	20.6	2.04	2.70	267			
5-14	GJAST-05	4556.21	1.00	100	1/14/2013	7.2	0.72	8.6	0.86	1.08	108			
5-15	GJAST-05	4555.21	1.00	100	1/14/2013	4.5	0.45	20.7	2.07	0.94	94			
5-16	GJAST-05	4554.21	1.00	100	1/14/2013	3.5	0.35	13.4	1.34	0.77	77			
5-17	GJAST-05	4553.21	1.01	100	1/14/2013	4.1	0.41	6.1	0.60	0.63	62			
5-18	GJAST-05	4552.21	0.99	100	1/14/2013	3.8	0.38	5.0	0.51	0.83	84			
5-19	GJAST-05	4551.21	0.99	100	1/14/2013	3.7	0.37	10.0	1.01	0.78	79			
5-20	GJAST-05	4550.21	1.01	100	1/14/2013	5.3	0.52	16.2	1.60	2.14	212			
5-20 dup	GJAST-05	4550.21	1.00	100	1/14/2013	4.3	0.43	9.6	0.96	1.58	158			
5-21	GJAST-05	4549.21	1.00	100	1/15/2013	3.7	0.37	6.1	0.61	1.72	172			
5-22	GJAST-05	4548.21	0.99	100	1/15/2013	4.6	0.46	5.0	0.51	2.00	202			
6-1	GJAST-06	4569.29	1.01	100	1/15/2013	5.5	0.54	6.0	0.59	2.30	228			
6-2	GJAST-06	4568.29	1.01	100	1/15/2013	17	1.68	5.0	0.50	2.28	226			
6-3	GJAST-06	4567.29	1.00	100	1/15/2013	33.6	3.36	5.0	0.50	2.51	251			
6-4	GJAST-06	4566.29	1.00	100	1/15/2013	36.5	3.65	5.0	0.50	2.00	200			
6-5	GJAST-06	4565.29	0.99	100	1/15/2013	28.2	2.85	12.3	1.24	1.25	126			
6-6	GJAST-06	4564.29	1.01	100	1/15/2013	25.3	2.50	14.8	1.47	1.10	109			
6-7	GJAST-06	4563.29	1.01	100	1/15/2013	12.2	1.21	9.9	0.98	1.87	185			
6-8	GJAST-06	4562.29	1.00	100	1/15/2013	8.8	0.88	14.7	1.47	1.22	122			
6-9	GJAST-06	4561.29	0.99	100	1/15/2013	6	0.61	82.3	8.31	1.04	105			
6-10	GJAST-06	4560.29	0.99	100	1/15/2013	8.4	0.85	50.9	5.14	1.14	115			
6-11	GJAST-06	4559.29	1.00	100	1/15/2013	15.4	1.54	23.6	2.36	2.39	239			
6-12	GJAST-06	4558.29	1.00	100	1/15/2013	10.9	1.09	16.3	1.63	3.01	301			
6-13	GJAST-06	4557.29	1.00	100	1/15/2013	6.9	0.69	7.4	0.74	1.08	108			
6-13 dup	GJAST-06	4557.29	1.01	100	1/15/2013	6.2	0.61	8.8	0.87	1.02	101			
6-14	GJAST-06	4556.29	1.00	100	1/15/2013	5.9	0.59	10.1	1.01	1.48	148			
6-15	GJAST-06	4555.29	1.00	100	1/15/2013	3.6	0.36	19.7	1.97	0.90	90			
6-16	GJAST-06	4554.29	1.01	100	1/15/2013	3	0.30	5.2	0.51	0.62	61			
6-17	GJAST-06	4553.29	1.00	100	1/15/2013	2.9	0.29	5.0	0.50	0.61	61			
6-18	GJAST-06	4552.29	1.00	100	1/15/2013	3.8	0.38	5.0	0.50	0.74	74			
6-19	GJAST-06	4551.29	1.00	100	1/15/2013	3.1	0.31	13.3	1.33	1.06	106			
6-20	GJAST-06	4550.29	1.00	100	1/15/2013	4	0.40	9.3	0.93	1.51	151			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
7-1	GJAST-07	4568.78	1.01	100	1/15/2013	11.7	1.16	6.2	0.61	2.32	230			
7-2	GJAST-07	4567.78	1.00	100	1/15/2013	13.1	1.31	6.4	0.64	1.41	141			
7-3	GJAST-07	4566.78	1.01	100	1/15/2013	26	2.57	6.4	0.63	1.62	160			
7-4	GJAST-07	4565.78	0.99	100	1/15/2013	14.1	1.42	13.2	1.33	1.51	153			
7-5	GJAST-07	4564.78	1.00	100	1/15/2013	28	2.80	8.7	0.87	1.69	169			
7-6,7	GJAST-07	4563.28	1.01	100	1/15/2013	21	2.08	11.1	1.10	1.54	152			
7-8,9	GJAST-07	4561.28	1.00	100	1/15/2013	26.5	2.65	14.6	1.46	1.32	132			
7-10,11	GJAST-07	4559.28	1.00	100	1/15/2013	39.7	3.97	26.0	2.60	1.31	131			
7-10,11 dup	GJAST-07	4559.28	0.99	100	1/15/2013	41.8	4.22	27.0	2.73	1.34	135			
7-12,13	GJAST-07	4557.28	1.01	100	1/16/2013	42.3	4.19	10.7	1.06	2.28	226			
7-14,15	GJAST-07	4555.28	0.99	100	1/16/2013	56.8	5.74	18.3	1.85	1.08	109			
7-16,17	GJAST-07	4553.28	1.01	100	1/16/2013	16.4	1.62	5.0	0.50	1.07	106			
7-18,19	GJAST-07	4551.28	1.00	100	1/16/2013	5.7	0.57	5.0	0.50	0.55	55			
7-20,21	GJAST-07	4549.28	1.01	100	1/16/2013	6	0.59	5.0	0.50	0.89	88			
7-22,23	GJAST-07	4547.28	0.99	100	1/16/2013	8.4	0.85	5.0	0.51	1.08	109			
7-24	GJAST-07	4545.78	1.01	100	1/16/2013	9.4	0.93	7.9	0.78	7.22	715			
8-1,2	GJAST-08	4568.91	1.01	100	1/16/2013	23.8	2.36	15.6	1.54	1.46	145			
8-3,4	GJAST-08	4566.91	1.00	100	1/16/2013	23.3	2.33	7.6	0.76	1.46	146			
8-5,6	GJAST-08	4564.91	1.00	100	1/16/2013	25.8	2.58	13.0	1.30	1.30	130			
8-7	GJAST-08	4563.41	0.99	100	1/16/2013	39	3.94	8.2	0.83	1.33	134			
8-8	GJAST-08	4562.41	1.00	100	1/16/2013	14.6	1.46	7.2	0.72	1.24	124			
8-9	GJAST-08	4561.41	1.01	100	1/16/2013	18.3	1.81	7.0	0.69	1.32	131			
8-10	GJAST-08	4560.41	1.01	100	1/16/2013	42.4	4.20	16.0	1.58	1.41	140			
8-11	GJAST-08	4559.41	1.00	100	1/16/2013	22.9	2.29	13.7	1.37	2.71	271			
8-11 dup	GJAST-08	4559.41	1.00	100	1/16/2013	21.2	2.12	12.4	1.24	2.48	248			
8-12	GJAST-08	4558.41	0.99	100	1/16/2013	16.8	1.70	7.4	0.75	1.42	143			
8-13	GJAST-08	4557.41	1.00	100	1/16/2013	16.2	1.62	6.0	0.60	0.94	94			
8-14	GJAST-08	4556.41	1.00	100	1/16/2013	13.1	1.31	14.8	1.48	1.17	117			
8-15	GJAST-08	4555.41	1.00	100	1/16/2013	11.9	1.19	12.8	1.28	1.64	164			
8-16,17	GJAST-08	4553.91	1.00	100	1/16/2013	8.7	0.87	12.6	1.26	1.37	137			
8-18,19	GJAST-08	4551.91	1.00	100	1/16/2013	7.9	0.79	7.1	0.71	1.45	145			
8-20,21	GJAST-08	4549.91	0.99	100	1/16/2013	7	0.71	5.0	0.51	0.76	77			
8-22,23	GJAST-08	4547.91	1.00	100	1/16/2013	8	0.80	9.7	0.97	1.02	102			
8-24	GJAST-08	4546.41	0.99	100	1/16/2013	5.6	0.57	11.6	1.17	0.74	75			
9-1	GJAST-09	4569.67	1.00	100	1/16/2013	4.8	0.48	5.0	0.50	2.08	208			
9-2	GJAST-09	4568.67	1.00	100	1/16/2013	4.5	0.45	5.0	0.50	1.83	183			
9-3	GJAST-09	4567.67	1.00	100	1/16/2013	3.6	0.36	5.0	0.50	1.69	169			
9-4	GJAST-09	4566.67	1.01	100	1/16/2013	7.2	0.71	5.0	0.50	1.86	184			
9-5	GJAST-09	4565.67	1.01	100	1/16/2013	25.8	2.55	5.0	0.50	1.50	149			
9-6	GJAST-09	4564.67	0.99	100	1/16/2013	23.7	2.39	5.0	0.51	1.16	117			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
9-6 dup	GJAST-09	4564.67	1.01	100	1/16/2013	22.1	2.19	5.0	0.50	1.07	106			
10a-1,2	GJAST-10a	4567.41	1.01	100	1/17/2013	14.7	1.46	7.1	0.70	1.92	190			
10a-3,4	GJAST-10a	4565.41	1.01	100	1/17/2013	25.5	2.52	6.7	0.66	1.64	162			
10-5	GJAST-10	4563.53	1.00	100	1/17/2013	24.7	2.47	7.8	0.78	1.41	141			
10-6	GJAST-10	4562.53	1.01	100	1/17/2013	25.6	2.53	8.2	0.81	1.41	140			
10-7	GJAST-10	4561.53	1.01	100	1/17/2013	32.9	3.26	9.0	0.89	2.11	209			
10-8	GJAST-10	4560.53	0.99	100	1/17/2013	31.7	3.20	12.2	1.23	1.47	148			
10-9	GJAST-10	4559.53	0.99	100	1/17/2013	26.1	2.64	12.1	1.22	2.13	215			
10-10	GJAST-10	4558.53	1.01	100	1/17/2013	16	1.58	19.0	1.88	1.56	154			
10-11,12	GJAST-10	4557.03	1.00	100	1/17/2013	11.8	1.18	13.0	1.30	1.56	156			
10-13,14	GJAST-10	4555.03	0.99	100	1/17/2013	7.6	0.77	6.0	0.61	0.76	77			
10-15,16	GJAST-10	4553.03	0.99	100	1/17/2013	7.8	0.79	16.2	1.64	2.61	264			
10-17,18	GJAST-10	4551.03	1.01	100	1/17/2013	5.2	0.51	19.3	1.91	2.71	268			
10-19,20	GJAST-10	4549.03	1.00	100	1/17/2013	6.4	0.64	11.0	1.10	1.25	125			
10-21	GJAST-10	4547.53	0.99	100	1/17/2013	6.1	0.62	5.0	0.51	1.37	138			
11-1	GJAST-11	4567.64	1.01	100	1/17/2013	11	1.09	6.7	0.66	1.84	182			
11-1 dup	GJAST-11	4567.64	1.00	100	1/17/2013	10.8	1.08	6.2	0.62	1.62	162			
11-2	GJAST-11	4566.64	0.99	100	1/17/2013	22.5	2.27	9.1	0.92	2.44	246			
11-3	GJAST-11	4565.64	0.99	100	1/17/2013	45	4.55	11.1	1.12	3.28	331			
11-4	GJAST-11	4564.64	0.99	100	1/17/2013	60.7	6.13	9.0	0.91	3.06	309			
11-5	GJAST-11	4563.64	1.01	100	1/17/2013	21.2	2.10	5.0	0.50	2.29	227			
11-6	GJAST-11	4562.64	1.01	100	1/17/2013	29.2	2.89	5.0	0.50	1.98	196			
11-7	GJAST-11	4561.64	0.99	100	1/17/2013	24.6	2.48	5.0	0.51	1.98	200			
11-8	GJAST-11	4560.64	1.00	100	1/17/2013	20.5	2.05	5.0	0.50	2.42	242			
11-9	GJAST-11	4559.64	1.00	100	1/17/2013	8.8	0.88	5.9	0.59	1.53	153			
11-10,11	GJAST-11	4558.14	1.00	100	1/17/2013	13	1.30	20.7	2.07	1.40	140			
11-12,13	GJAST-11	4556.14	1.00	100	1/17/2013	8.2	0.82	34.5	3.45	1.43	143			
11-14,15	GJAST-11	4554.14	1.01	100	1/17/2013	5.7	0.56	9.4	0.93	0.88	87			
11-16,17	GJAST-11	4552.14	0.99	100	1/17/2013	4.7	0.47	8.6	0.87	0.78	79			
11-18,19	GJAST-11	4550.14	1.00	100	1/17/2013	4.9	0.49	5.0	0.50	1.78	178			
11-20	GJAST-11	4548.64	0.99	100	1/17/2013	5.2	0.53	5.0	0.51	1.14	115			
12-1	GJAST-12	4567.71	1.01	100	1/17/2013	4.1	0.41	5.0	0.50	1.73	171			
12-1 dup	GJAST-12	4567.71	1.00	100	1/17/2013	3.8	0.38	5.0	0.50	2.15	215			
12-2	GJAST-12	4566.71	0.99	100	1/18/2013	4.5	0.45	5.0	0.51	1.87	189			
12-3	GJAST-12	4565.71	1.01	100	1/18/2013	5.4	0.53	5.0	0.50	1.95	193			
12-4	GJAST-12	4564.71	1.00	100	1/18/2013	4.8	0.48	5.0	0.50	1.74	174			
12-5	GJAST-12	4563.71	1.01	100	1/18/2013	6.5	0.64	5.0	0.50	2.12	210			
12-6	GJAST-12	4562.71	1.00	100	1/18/2013	7.5	0.75	5.0	0.50	1.93	193			
12-7	GJAST-12	4561.71	0.99	100	1/18/2013	11.2	1.13	5.0	0.51	1.73	175			
12-8	GJAST-12	4560.71	1.00	100	1/18/2013	2.2	0.22	5.0	0.50	1.03	103			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
12-9	GJAST-12	4559.71	1.01	100	1/18/2013	2.9	0.29	8.5	0.84	1.92	190			
12-10	GJAST-12	4558.71	1.01	100	1/18/2013	10.3	1.02	25.4	2.51	3.28	325			
12-11,12	GJAST-12	4557.21	1.00	100	1/18/2013	13.6	1.36	33.0	3.30	2.62	262			
12-13,14	GJAST-12	4555.21	1.00	100	1/18/2013	6.3	0.63	18.0	1.80	1.53	153			
12-15,16	GJAST-12	4553.21	1.00	100	1/18/2013	4.8	0.48	11.0	1.10	0.91	91			
12-17,18	GJAST-12	4551.21	0.99	100	1/18/2013	6.5	0.66	6.0	0.61	0.95	96			
12-19,20	GJAST-12	4549.21	0.99	100	1/18/2013	6.3	0.64	5.0	0.51	1.01	102			
13-1	GJAST-13	4567.33	0.99	100	1/18/2013	16.7	1.69	6.2	0.63	1.50	152			
13-1 dup	GJAST-13	4567.33	0.99	100	1/18/2013	14.8	1.49	6.6	0.67	1.49	151			
13-2	GJAST-13	4566.33	0.99	100	1/18/2013	20.4	2.06	5.4	0.55	1.40	141			
13-3	GJAST-13	4565.33	0.99	100	1/18/2013	17.3	1.75	6.8	0.69	1.54	156			
13-4	GJAST-13	4564.33	0.99	100	1/18/2013	21.4	2.16	7.2	0.73	2.57	260			
13-5	GJAST-13	4563.33	1.00	100	1/18/2013	21.5	2.15	9.3	0.93	1.60	160			
13-6	GJAST-13	4562.33	1.01	100	1/18/2013	27.4	2.71	10.7	1.06	1.96	194			
13-7	GJAST-13	4561.33	1.00	100	1/18/2013	32.4	3.24	8.8	0.88	1.62	162			
13-8	GJAST-13	4560.33	1.00	100	1/18/2013	37.2	3.72	9.1	0.91	1.51	151			
13-9	GJAST-13	4559.33	1.00	100	1/18/2013	36.8	3.68	5.4	0.54	2.35	235			
13-10	GJAST-13	4558.33	0.99	100	1/18/2013	27.9	2.82	9.2	0.93	1.36	137			
13-11	GJAST-13	4557.33	0.99	100	1/18/2013	26.7	2.70	9.5	0.96	1.41	142			
13-12	GJAST-13	4556.33	1.00	100	1/18/2013	26.7	2.67	26.8	2.68	1.39	139			
13-13	GJAST-13	4555.33	1.00	100	1/18/2013	7.4	0.74	25.9	2.59	1.22	122			
13-14	GJAST-13	4554.33	1.00	100	1/18/2013	4.9	0.49	5.7	0.57	14.0	1400			
13-15	GJAST-13	4553.33	1.00	100	1/18/2013	6.7	0.67	7.3	0.73	0.96	96			
13-16	GJAST-13	4552.33	1.01	100	1/18/2013	6.6	0.65	5.5	0.54	0.99	98			
13-16 dup	GJAST-13	4552.33	1.00	100	1/18/2013	6.2	0.62	5.9	0.59	1.00	100			
13-17	GJAST-13	4551.33	1.01	100	1/21/2013	6	0.59	6.9	0.68	1.04	103			
13-18	GJAST-13	4550.33	1.00	100	1/21/2013	7.6	0.76	5.7	0.57	1.18	118			
13-19	GJAST-13	4549.33	1.00	100	1/21/2013	7	0.70	9.9	0.99	0.96	96			
13-20	GJAST-13	4548.33	1.01	100	1/21/2013	8.3	0.82	6.1	0.60	1.12	111			
13-21	GJAST-13	4547.33	1.00	100	1/21/2013	14.1	1.41	9.1	0.91	2.04	204			
13-22	GJAST-13	4546.33	1.00	100	1/21/2013	7.4	0.74	5.7	0.57	1.16	116			
13-23	GJAST-13	4545.33	1.00	100	1/21/2013	7.4	0.74	6.9	0.69	1.18	118			
14-1	GJAST-14	4567.48	1.00	100	1/21/2013	11.6	1.16	5.8	0.58	1.49	149			
14-2	GJAST-14	4566.48	1.01	100	1/21/2013	24.8	2.46	7.6	0.75	1.23	122			
14-3	GJAST-14	4565.48	0.99	100	1/21/2013	33.5	3.38	5.0	0.51	2.19	221			
14-4	GJAST-14	4564.48	0.99	100	1/21/2013	24.1	2.43	5.0	0.51	1.88	190			
14-5	GJAST-14	4563.48	1.00	100	1/21/2013	40	4.00	5.5	0.55	1.87	187			
14-6	GJAST-14	4562.48	1.01	100	1/21/2013	68.1	6.74	9.9	0.98	2.00	198			
14-7	GJAST-14	4561.48	1.00	100	1/21/2013	74.3	7.43	15.0	1.50	2.15	215	15.7	1570	
14-8	GJAST-14	4560.48	1.01	100	1/21/2013	83.8	8.30	14.5	1.44	1.88	186	15.7	1554	

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
14-8 dup	GJAST-14	4560.48	1.00	100	1/21/2013	79.7	7.97	13.6	1.36	1.86	186	15.7	1570	
14-9	GJAST-14	4559.48	0.99	100	1/21/2013	73.4	7.41	12.4	1.25	2.07	209	16.2	1636	
14-10	GJAST-14	4558.48	0.99	100	1/21/2013	58.6	5.92	7.1	0.72	1.90	192			
14-11,12	GJAST-14	4556.98	1.00	100	1/21/2013	24.8	2.48	5.0	0.50	1.02	102			
14-13,14	GJAST-14	4554.98	0.99	100	1/21/2013	6.9	0.70	5.0	0.51	0.86	87			
14-15,16	GJAST-14	4552.98	0.99	100	1/21/2013	5.2	0.53	9.3	0.94	0.60	61			
14-17,18	GJAST-14	4550.98	0.99	100	1/21/2013	4.8	0.48	8.9	0.90	0.49	49			
14-19,20	GJAST-14	4548.98	1.00	100	1/21/2013	4.9	0.49	5.0	0.50	0.50	50	7.18	718	
14-21	GJAST-14	4547.48	1.01	100	1/21/2013	5.9	0.58	9.1	0.90	0.66	65			
15-1	GJAST-15	4567.92	1.00	100	1/21/2013	3	0.30	5.0	0.50	1.87	187			
15-2	GJAST-15	4566.92	0.99	100	1/21/2013	4.6	0.46	5.0	0.51	2.01	203			
15-3	GJAST-15	4565.92	1.00	100	1/21/2013	8.9	0.89	5.5	0.55	2.76	276			
15-4	GJAST-15	4564.92	1.00	100	1/21/2013	7	0.70	5.0	0.50	2.08	208			
15-5	GJAST-15	4563.92	1.00	100	1/21/2013	3.3	0.33	5.0	0.50	1.61	161			
15-6	GJAST-15	4562.92	1.00	100	1/21/2013	6.4	0.64	5.0	0.50	1.81	181			
15-7	GJAST-15	4561.92	0.99	100	1/21/2013	3.9	0.39	5.0	0.51	1.53	155			
15-7 dup	GJAST-15	4561.92	0.99	100	1/21/2013	3.4	0.34	5.0	0.51	1.50	152			
15-8	GJAST-15	4560.92	1.00	100	1/22/2013	4.5	0.45	5.0	0.50	1.13	113			
15-9	GJAST-15	4559.92	1.00	100	1/22/2013	8.3	0.83	5.0	0.50	1.63	163			
15-10	GJAST-15	4558.92	0.99	100	1/22/2013	11.3	1.14	5.0	0.51	1.16	117			
15-11	GJAST-15	4557.92	0.99	100	1/22/2013	12.8	1.29	5.0	0.51	1.40	141			
15-12	GJAST-15	4556.92	1.00	100	1/22/2013	30.3	3.03	5.0	0.50	2.37	237			
15-13	GJAST-15	4555.92	1.00	100	1/22/2013	69.3	6.93	5.0	0.50	2.22	222	27.9	2790	
15-14	GJAST-15	4554.92	1.00	100	1/22/2013	34.5	3.45	15.6	1.56	1.52	152			
15-15,16	GJAST-15	4553.42	1.01	100	1/22/2013	28.9	2.86	9.4	0.93	0.54	53			
15-17,18	GJAST-15	4551.42	1.00	100	1/22/2013	6.9	0.69	5.0	0.50	1.30	130			
15-19,20	GJAST-15	4549.42	1.01	100	1/22/2013	7.2	0.71	11.1	1.10	0.69	68			
16-1	GJAST-16	4566.7	0.99	100	1/22/2013	16.4	1.66	5.6	0.57	1.52	154			
16-2	GJAST-16	4565.7	1.00	100	1/22/2013	19.4	1.94	31.2	3.12	1.58	158			
16-3	GJAST-16	4564.7	1.01	100	1/22/2013	15.5	1.53	6.3	0.62	1.64	162			
16-4	GJAST-16	4563.7	0.99	100	1/22/2013	17.9	1.81	6.4	0.65	1.94	196			
16-5	GJAST-16	4562.7	1.00	100	1/22/2013	24.1	2.41	15.5	1.55	1.63	163			
16-5 dup	GJAST-16	4562.7	0.99	100	1/22/2013	24.2	2.44	16.2	1.64	1.62	164			
16-6,7	GJAST-16	4561.2	0.99	100	1/22/2013	22.4	2.26	6.6	0.67	1.88	190			
16-8,9	GJAST-16	4559.2	0.99	100	1/22/2013	36.1	3.65	9.9	1.00	2.47	249			
16-10,11	GJAST-16	4557.2	1.00	100	1/22/2013	37.1	3.71	21.8	2.18	1.88	188			
16-12,13	GJAST-16	4555.2	1.01	100	1/22/2013	60.9	6.03	22.3	2.21	1.47	146			
16-14,15	GJAST-16	4553.2	0.99	100	1/22/2013	36.4	3.68	15.0	1.52	0.79	80			
16-16,17	GJAST-16	4551.2	0.99	100	1/22/2013	5.5	0.56	7.2	0.73	0.76	77			
16-18,19	GJAST-16	4549.2	1.00	100	1/22/2013	8.6	0.86	8.7	0.87	2.13	213			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
16-20,20.5	GJAST-16	4547.45	0.99	100	1/22/2013	6.5	0.66	8.9	0.90	1.02	103			
17-1	GJAST-17	4567.26	0.99	100	1/22/2013	12.2	1.23	5.7	0.58	2.39	241			
17-2	GJAST-17	4566.26	1.00	100	1/22/2013	13.4	1.34	6.3	0.63	2.14	214			
17-3	GJAST-17	4565.26	1.01	100	1/22/2013	24.9	2.47	10.0	0.99	1.35	134			
17-4	GJAST-17	4564.26	1.00	100	1/22/2013	23.5	2.35	7.7	0.77	1.61	161			
17-5	GJAST-17	4563.26	0.99	100	1/22/2013	39.1	3.95	18.9	1.91	1.36	137			
17-6	GJAST-17	4562.26	1.01	100	1/22/2013	37.3	3.69	18.5	1.83	1.36	135			
17-7	GJAST-17	4561.26	0.99	100	1/22/2013	34.1	3.44	9.3	0.94	1.51	153			
17-7 dup	GJAST-17	4561.26	1.01	100	1/22/2013	34.8	3.45	7.6	0.75	1.44	143			
17-8	GJAST-17	4560.26	1.00	100	1/23/2013	36	3.60	8.5	0.85	1.45	145			
17-9	GJAST-17	4559.26	0.99	100	1/23/2013	29.7	3.00	6.2	0.63	1.63	165			
17-10	GJAST-17	4558.26	1.01	100	1/23/2013	38.5	3.81	12.1	1.20	1.63	161			
17-11,12	GJAST-17	4556.76	1.00	100	1/23/2013	25.4	2.54	15.4	1.54	1.61	161			
17-13,14	GJAST-17	4554.76	0.99	100	1/23/2013	9.1	0.92	8.1	0.82	1.32	133			
17-15,16	GJAST-17	4552.76	1.01	100	1/23/2013	7.7	0.76	10.4	1.03	1.06	105			
17-17,18	GJAST-17	4550.76	1.01	100	1/23/2013	8	0.79	9.7	0.96	1.20	119			
17-19,20	GJAST-17	4548.76	1.00	100	1/23/2013	12.1	1.21	11.2	1.12	1.56	156			
17-21,22	GJAST-17	4546.76	0.99	100	1/23/2013	9.3	0.94	5.3	0.54	1.19	120			
17-23,24	GJAST-17	4544.76	0.99	100	1/23/2013	5.6	0.57	5.0	0.51	1.18	119			
18-1	GJAST-18	4566.72	1.00	100	1/23/2013	16.4	1.64	5.2	0.52	1.63	163			
18-2	GJAST-18	4565.72	1.01	100	1/23/2013	20.7	2.05	7.3	0.72	1.50	149			
18-3	GJAST-18	4564.72	0.99	100	1/23/2013	26.1	2.64	7.7	0.78	1.46	147			
18-4	GJAST-18	4563.72	0.99	100	1/23/2013	29.9	3.02	11.7	1.18	1.44	145			
18-5	GJAST-18	4562.72	1.01	100	1/23/2013	41.8	4.14	10.8	1.07	1.34	133			
18-5 dup	GJAST-18	4562.72	0.99	100	1/23/2013	36	3.64	9.5	0.96	1.20	121			
18-6	GJAST-18	4561.72	1.00	100	1/23/2013	27.8	2.78	7.6	0.76	1.50	150			
18-7	GJAST-18	4560.72	0.99	100	1/23/2013	28.4	2.87	5.0	0.51	1.63	165			
18-8	GJAST-18	4559.72	0.99	100	1/23/2013	27	2.73	5.0	0.51	1.72	174			
18-9	GJAST-18	4558.72	1.00	100	1/23/2013	31.6	3.16	5.0	0.50	1.53	153			
18-10	GJAST-18	4557.72	0.99	100	1/23/2013	31.7	3.20	8.9	0.90	1.92	194			
18-11,12	GJAST-18	4556.22	1.01	100	1/23/2013	29.9	2.96	10.7	1.06	2.43	241			
18-13,14	GJAST-18	4554.22	1.00	100	1/23/2013	23.2	2.32	16.6	1.66	1.14	114			
18-15	GJAST-18	4552.72	1.01	100	1/23/2013	7.6	0.75	5.0	0.50	0.72	71			
18-16	GJAST-18	4551.72	0.99	100	1/23/2013	6.8	0.69	5.0	0.51	0.62	63			
18-17	GJAST-18	4550.72	1.00	100	1/23/2013	9.2	0.92	7.3	0.73	1.12	112			
18-18	GJAST-18	4549.72	1.01	100	1/23/2013	6.1	0.60	5.4	0.53	0.64	63			
18-19	GJAST-18	4548.72	1.00	100	1/23/2013	6.7	0.67	7.0	0.70	0.85	85			
18-20	GJAST-18	4547.72	1.01	100	1/23/2013	5.7	0.56	8.8	0.87	0.79	78			
18-21	GJAST-18	4546.72	1.01	100	1/23/2013	6.1	0.60	6.5	0.64	0.85	84			
19-1	GJAST-19	4567.28	1.00	100	1/23/2013	11.3	1.13	7.0	0.70	1.49	149			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
19-1 dup	GJAST-19	4567.28	0.99	100	1/23/2013	11	1.11	7.2	0.73	1.46	147			
19-2	GJAST-19	4566.28	1.00	100	1/24/2013	16	1.60	5.5	0.55	1.26	126			
19-3	GJAST-19	4565.28	0.99	100	1/24/2013	17.2	1.74	6.4	0.65	1.24	125			
19-4	GJAST-19	4564.28	1.00	100	1/24/2013	8	0.80	5.0	0.50	1.65	165			
19-5	GJAST-19	4563.28	1.00	100	1/24/2013	20.1	2.01	6.0	0.60	2.64	264			
19-6	GJAST-19	4562.28	1.01	100	1/24/2013	63	6.24	6.7	0.66	2.85	282	26.3	2604	
19-7	GJAST-19	4561.28	0.99	100	1/24/2013	20.7	2.09	7.3	0.74	1.53	155			
19-8	GJAST-19	4560.28	0.99	100	1/24/2013	56.3	5.69	10.7	1.08	2.42	244	38.8	3919	
19-9	GJAST-19	4559.28	1.01	100	1/24/2013	49.9	4.94	19.2	1.90	1.54	152	30.9	3059	
19-10	GJAST-19	4558.28	0.99	100	1/24/2013	33.4	3.37	24.5	2.47	1.05	106			
19-11,12	GJAST-19	4556.78	1.00	100	1/24/2013	27.1	2.71	18.2	1.82	1.33	133			
19-13,14	GJAST-19	4554.78	0.99	100	1/24/2013	4.8	0.48	8.3	0.84	1.37	138			
19-15,16	GJAST-19	4552.78	1.00	100	1/24/2013	6.3	0.63	23.9	2.39	1.27	127	21.3	2130	
19-17,18	GJAST-19	4550.78	1.00	100	1/24/2013	9.8	0.98	7.7	0.77	1.78	178			
19-19,20	GJAST-19	4548.78	1.00	100	1/24/2013	9	0.90	13.2	1.32	1.83	183			
20-1	GJAST-20	4567.16	1.00	100	1/24/2013	12.9	1.29	8.5	0.85	1.46	146			
20-1 dup	GJAST-20	4567.16	0.99	100	1/24/2013	12.3	1.24	8.7	0.88	1.46	147			
20-2	GJAST-20	4566.16	0.99	100	1/24/2013	16.2	1.64	7.7	0.78	1.54	156			
20-3	GJAST-20	4565.16	1.01	100	1/24/2013	15.2	1.50	6.8	0.67	1.15	114			
20-4	GJAST-20	4564.16	0.99	100	1/24/2013	23.1	2.33	88.3	8.92	1.72	174			
20-5	GJAST-20	4563.16	0.99	100	1/24/2013	33.5	3.38	11.5	1.16	1.65	167			
20-6	GJAST-20	4562.16	1.00	100	1/24/2013	34.3	3.43	10.0	1.00	1.49	149			
20-7	GJAST-20	4561.16	1.01	100	1/24/2013	30.7	3.04	5.7	0.56	1.49	148			
20-8	GJAST-20	4560.16	1.01	100	1/24/2013	32.5	3.22	9.1	0.90	1.71	169			
20-9	GJAST-20	4559.16	1.00	100	1/24/2013	58.6	5.86	13.5	1.35	1.81	181	16.0	1600	
20-10	GJAST-20	4558.16	0.99	100	1/24/2013	98.9	9.99	27.9	2.82	2.68	271	18.1	1828	
20-11,12	GJAST-20	4556.66	1.01	100	1/24/2013	79.6	7.88	22.8	2.26	1.20	119	20.1	1990	
20-13,14	GJAST-20	4554.66	0.99	100	1/24/2013	42.7	4.31	13.7	1.38	0.83	84			
20-15,16	GJAST-20	4552.66	1.01	100	1/24/2013	59.9	5.93	25.9	2.56	1.23	122	17.1	1693	
20-17,18	GJAST-20	4550.66	0.99	100	1/24/2013	32.8	3.31	24.8	2.51	0.88	89			
20-19,20	GJAST-20	4548.66	0.99	100	1/24/2013	10.5	1.06	17.4	1.76	0.98	99			
21-1	GJAST-21	4566.7	1.00	100	1/24/2013	14.2	1.42	9.3	0.93	1.56	156			
21-1 dup	GJAST-21	4566.7	0.99	100	1/24/2013	12.5	1.26	8.9	0.90	1.58	160			
21-2	GJAST-21	4565.7	0.99	100	1/25/2013	16.1	1.63	13.6	1.37	1.55	157			
21-3	GJAST-21	4564.7	0.99	100	1/25/2013	27.6	2.79	10.6	1.07	1.68	170			
21-4	GJAST-21	4563.7	1.00	100	1/25/2013	38.7	3.87	7.6	0.76	2.27	227			
21-5	GJAST-21	4562.7	1.00	100	1/25/2013	29.6	2.96	10.8	1.08	2.26	226			
21-6	GJAST-21	4561.7	1.00	100	1/25/2013	16.3	1.63	10.6	1.06	1.26	126			
21-7	GJAST-21	4560.7	1.00	100	1/25/2013	7.6	0.76	10.9	1.09	1.14	114			
21-8	GJAST-21	4559.7	1.01	100	1/25/2013	12	1.19	17.2	1.70	1.68	166			

Table C-2. 5% Nitric Acid Extractions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	HNO ₃ Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Molybdenum (µg/L)	Molybdenum (µg/g)	Manganese (mg/L)	Manganese (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
21-9	GJAST-21	4558.7	1.00	100	1/25/2013	25.2	2.52	20.6	2.06	1.83	183			
21-10	GJAST-21	4557.7	1.00	100	1/25/2013	17.7	1.77	44.4	4.44	2.21	221			
21-11,12	GJAST-21	4556.2	1.00	100	1/25/2013	11.6	1.16	17.7	1.77	1.91	191			
21-13,14	GJAST-21	4554.2	0.99	100	1/25/2013	12.9	1.30	13.4	1.35	1.16	117			
21-15,16	GJAST-21	4552.2	1.00	100	1/25/2013	9.1	0.91	41.0	4.10	1.49	149			
21-17,18	GJAST-21	4550.2	1.00	100	1/25/2013	7.9	0.79	6.2	0.62	1.28	128			
21-19,20	GJAST-21	4548.2	1.00	100	1/25/2013	7.9	0.79	5.2	0.52	1.14	114			
21-21	GJAST-21	4546.7	1.01	100	1/25/2013	9	0.89	9.8	0.97	1.47	146			
21-21 dup	GJAST-21	4546.7	1.00	100	1/25/2013	6.7	0.67	5.0	0.50	1.40	140			
22-1	GJAST-22	4566.84	1.00	100	1/25/2013	18.6	1.86	7.6	0.76	1.47	147			
22-2	GJAST-22	4565.84	0.99	100	1/25/2013	26.3	2.66	5.0	0.51	1.78	180			
22-3	GJAST-22	4564.84	0.99	100	1/25/2013	21.6	2.18	5.0	0.51	2.54	257			
22-4	GJAST-22	4563.84	0.99	100	1/25/2013	9.9	1.00	5.0	0.51	2.39	241			
22-5	GJAST-22	4562.84	1.01	100	1/25/2013	12.3	1.22	5.0	0.50	2.52	250			
22-6	GJAST-22	4561.84	0.99	100	1/25/2013	9.7	0.98	5.0	0.51	1.52	154			
22-7	GJAST-22	4560.84	1.00	100	1/25/2013	5.4	0.54	5.0	0.50	0.99	99			
22-8	GJAST-22	4559.84	1.01	100	1/25/2013	7.8	0.77	5.6	0.55	1.02	101			
22-9	GJAST-22	4558.84	1.01	100	1/25/2013	7.9	0.78	9.2	0.91	1.31	130			
22-10	GJAST-22	4557.84	1.00	100	1/25/2013	13.1	1.31	22.2	2.22	1.91	191			
22-11,12	GJAST-22	4556.34	0.99	100	1/25/2013	12	1.21	16.6	1.68	2.53	256			
22-13,14	GJAST-22	4554.34	1.01	100	1/25/2013	8.9	0.88	6.6	0.65	1.10	109			
22-15,16	GJAST-22	4552.34	1.00	100	1/25/2013	8.2	0.82	5.0	0.50	0.95	95			
22-17,18	GJAST-22	4550.34	0.99	100	1/25/2013	9.6	0.97	7.5	0.76	1.16	117			
22-19,20	GJAST-22	4548.34	1.00	100	1/25/2013	9.5	0.95	8.0	0.80	1.62	162			
22-19,20 dup	GJAST-22	4548.34	1.00	100	1/25/2013	8.4	0.84	6.8	0.68	1.50	150			
22-21,22	GJAST-22	4546.34	1.01	100	1/25/2013	11.7	1.16	5.0	0.50	1.33	132			

Notes:

The number after the dash in the field sample number is depth in feet below ground surface. (For example, "1-9" is a sample at 9 feet deep for boring GJAST-01).

Values in boldface type indicate concentrations are below detection limits.

Abbreviations:

dup = duplicate

ft amsl = above mean sea level

g = grams

g/L = grams per liter

µg/g = micrograms per gram

µg/L = micrograms per liter

mg/L = milligrams per liter

mL = milliliters

Table C-3. Microwave Digestions

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
1-1	GJAST-01	4569.25	0.499	50	1/23/2013	14.6	1.46			
1-2	GJAST-01	4568.25	0.496	50	1/23/2013	36.2	3.65			
1-3	GJAST-01	4567.25	0.500	50	1/23/2013	37.8	3.78			
1-4	GJAST-01	4566.25	0.500	50	1/23/2013	34.8	3.48			
1-5	GJAST-01	4565.25	0.497	50	1/23/2013	33.3	3.35			
1-6	GJAST-01	4564.25	0.502	50	1/23/2013	34.8	3.47			
1-7	GJAST-01	4563.25	0.500	50	1/23/2013	37.9	3.79			
1-8	GJAST-01	4562.25	0.498	50	1/23/2013	36.5	3.66			
1-9	GJAST-01	4561.25	0.499	50	1/23/2013	34.7	3.48			
1-10	GJAST-01	4560.25	0.504	50	1/23/2013	32.7	3.24			
1-11	GJAST-01	4559.25	0.504	50	1/23/2013	13.5	1.34			
1-12	GJAST-01	4558.25	0.501	50	1/23/2013	16.7	1.67			
1-12 dup	GJAST-01	4558.25	0.499	50	1/23/2013	9.6	0.96			
1-13	GJAST-01	4557.25	0.503	50	1/25/2013	23.9	2.38			
1-17	GJAST-01	4553.25	0.504	50	1/25/2013	16.6	1.65			
1-19	GJAST-01	4551.25	0.498	50	1/25/2013	16.8	1.69			
1-23	GJAST-01	4547.25	0.500	50	1/25/2013	17.5	1.75			
2-1	GJAST-02	4568.69	0.503	50	1/25/2013	7.7	0.77			
2-2	GJAST-02	4567.69	0.505	50	1/25/2013	4.4	0.44			
2-3	GJAST-02	4566.69	0.496	50	1/25/2013	12.4	1.25			
2-4	GJAST-02	4565.69	0.505	50	1/25/2013	19.8	1.96			
2-5	GJAST-02	4564.69	0.501	50	1/28/2013	12.3	1.23			Spilled sample 1/25, redigested 1/28
2-6	GJAST-02	4563.69	0.497	50	1/25/2013	3.9	0.39			
2-7	GJAST-02	4562.69	0.497	50	1/25/2013	10	1.01			
2-8	GJAST-02	4561.69	0.498	50	1/25/2013	9	0.90			
2-8 dup	GJAST-02	4561.69	0.503	50	1/25/2013	10	0.99			
2-9	GJAST-02	4560.69	0.504	50	1/28/2013	11.1	1.10			
2-10	GJAST-02	4559.69	0.499	50	1/28/2013	16.3	1.63			
2-11	GJAST-02	4558.69	0.500	50	1/28/2013	28.5	2.85			
2-12	GJAST-02	4557.69	0.499	50	1/28/2013	11.6	1.16			
2-13	GJAST-02	4556.69	0.498	50	1/28/2013	15.7	1.58			
2-14	GJAST-02	4555.69	0.503	50	1/28/2013	11.4	1.13			
2-15	GJAST-02	4554.69	0.504	50	1/28/2013	26.6	2.64			
2-16	GJAST-02	4553.69	0.498	50	1/28/2013	19.5	1.96			
2-17	GJAST-02	4552.69	0.496	50	1/28/2013	19.1	1.93			
2-18	GJAST-02	4551.69	0.498	50	1/28/2013	10	1.00			
2-19	GJAST-02	4550.69	0.503	50	1/28/2013	7.2	0.72			
2-19 dup	GJAST-02	4550.69	0.499	50	1/28/2013	7.7	0.77			
2-20	GJAST-02	4549.69	0.499	50	1/29/2013	30.5	3.06			
2-21	GJAST-02	4548.69	0.503	50	1/29/2013	12.1	1.20			
2-22	GJAST-02	4547.69	0.496	50	1/29/2013	13.3	1.34			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
2-23	GJAST-02	4546.69	0.496	50	1/29/2013	10.6	1.07			
2-24	GJAST-02	4545.69	0.505	50	1/29/2013	31.7	3.14			
3-1	GJAST-03	4569.49	0.499	50	1/29/2013	12.7	1.27			
3-2	GJAST-03	4568.49	0.498	50	1/29/2013	8.8	0.88			
3-3	GJAST-03	4567.49	0.504	50	1/29/2013	11.9	1.18			
3-4	GJAST-03	4566.49	0.503	50	1/29/2013	17.1	1.70			
3-5	GJAST-03	4565.49	0.499	50	1/29/2013	14.5	1.45			
3-6	GJAST-03	4564.49	0.498	50	1/29/2013	12.1	1.21			
3-7	GJAST-03	4563.49	0.495	50	1/29/2013	10	1.01			
3-7 dup	GJAST-03	4563.49	0.496	50	1/29/2013	10.7	1.08			
3-8	GJAST-03	4562.49	0.497	50	1/30/2013	10	1.01			
3-9	GJAST-03	4561.49	0.504	50	1/30/2013	11.1	1.10			
3-10	GJAST-03	4560.49	0.499	50	1/30/2013	29.9	3.00			
3-11	GJAST-03	4559.49	0.504	50	1/30/2013	14.7	1.46			
3-12	GJAST-03	4558.49	0.505	50	1/30/2013	32.7	3.24			
3-13	GJAST-03	4557.49	0.498	50	1/30/2013	14.9	1.50			
3-14	GJAST-03	4556.49	0.495	50	1/30/2013	20.9	2.11			
3-15	GJAST-03	4555.49	0.505	50	1/30/2013	10.3	1.02			
3-16	GJAST-03	4554.49	0.499	50	1/30/2013	10	1.00			
3-17	GJAST-03	4553.49	0.504	50	1/30/2013	17.8	1.77			
3-18	GJAST-03	4552.49	0.504	50	1/30/2013	12.9	1.28			
3-19	GJAST-03	4551.49	0.500	50	1/30/2013	19.5	1.95			
3-19 dup	GJAST-03	4551.49	0.501	50	1/30/2013	14.3	1.43			
3-20	GJAST-03	4550.49	0.502	50	1/31/2013	11.4	1.14			
3-21	GJAST-03	4549.49	0.500	50	1/31/2013	9.6	0.96			
3-22	GJAST-03	4548.49	0.499	50	1/31/2013	15	1.50			
3-23	GJAST-03	4547.49	0.499	50	1/31/2013	14.8	1.48			
3-24	GJAST-03	4546.49	0.496	50	1/31/2013	8.9	0.90			
4-1	GJAST-04	4569.18	0.501	50	1/31/2013	12.1	1.21			
4-2	GJAST-04	4568.18	0.501	50	1/31/2013	19.8	1.98			
4-3	GJAST-04	4567.18	0.500	50	1/31/2013	18.2	1.82			
4-4	GJAST-04	4566.18	0.498	50	1/31/2013	19.3	1.94			
4-5	GJAST-04	4565.18	0.502	50	1/31/2013	36.2	3.61			
4-6	GJAST-04	4564.18	0.496	50	1/31/2013	31.5	3.18			
5-1	GJAST-05	4569.21	0.498	50	1/31/2013	10	1.00			
5-1 dup	GJAST-05	4569.21	0.503	50	1/31/2013	11.9	1.18			
5-2	GJAST-05	4568.21	0.501	50	2/4/2013	10	1.00			
5-3	GJAST-05	4567.21	0.498	50	2/4/2013	10	1.00			
5-4	GJAST-05	4566.21	0.502	50	2/4/2013	23	2.29			
5-5	GJAST-05	4565.21	0.500	50	2/4/2013	7.4	0.74			
5-6	GJAST-05	4564.21	0.503	50	2/4/2013	18.1	1.80			
5-7	GJAST-05	4563.21	0.496	50	2/4/2013	10.9	1.10			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
5-8	GJAST-05	4562.21	0.503	50	2/4/2013	14.5	1.44			
5-9	GJAST-05	4561.21	0.504	50	2/4/2013	10	0.99			
5-10	GJAST-05	4560.21	0.502	50	2/4/2013	16.3	1.62			
5-11	GJAST-05	4559.21	0.499	50	2/4/2013	26.6	2.67			
5-12	GJAST-05	4558.21	0.497	50	2/4/2013	17.8	1.79			
5-13	GJAST-05	4557.21	0.498	50	2/4/2013	26.1	2.62			
5-13 dup	GJAST-05	4557.21	0.502	50	2/4/2013	16	1.59			
5-14	GJAST-05	4556.21	0.505	50	2/6/2013	12.8	1.27			
5-15	GJAST-05	4555.21	0.497	50	2/6/2013	22.6	2.27			
5-16	GJAST-05	4554.21	0.497	50	2/6/2013	17.1	1.72			
5-17	GJAST-05	4553.21	0.502	50	2/6/2013	7.7	0.77			
5-18	GJAST-05	4552.21	0.496	50	2/6/2013	10.2	1.03			
5-19	GJAST-05	4551.21	0.499	50	2/6/2013	14.7	1.47			
5-20	GJAST-05	4550.21	0.500	50	2/6/2013	16.7	1.67			
5-21	GJAST-05	4549.21	0.503	50	2/6/2013	8.2	0.82			
5-22	GJAST-05	4548.21	0.499	50	2/6/2013	9.7	0.97			
6-1	GJAST-06	4569.29	0.498	50	2/6/2013	10	1.00			
6-2	GJAST-06	4568.29	0.505	50	2/6/2013	18.9	1.87			
6-3	GJAST-06	4567.29	0.497	50	2/6/2013	29.8	3.00			
6-3 dup	GJAST-06	4567.29	0.501	50	2/6/2013	35	3.49			
6-4	GJAST-06	4566.29	0.501	50	2/7/2013	37.3	3.72			
6-5	GJAST-06	4565.29	0.499	50	2/7/2013	25.2	2.53			
6-6	GJAST-06	4564.29	0.496	50	2/7/2013	28.7	2.89			
6-7	GJAST-06	4563.29	0.499	50	2/7/2013	10	1.00			
6-8	GJAST-06	4562.29	0.501	50	2/7/2013	14	1.40			
6-9	GJAST-06	4561.29	0.497	50	2/7/2013	10.5	1.06			
6-10	GJAST-06	4560.29	0.499	50	2/7/2013	13.1	1.31			
6-11	GJAST-06	4559.29	0.505	50	2/7/2013	10	0.99			
6-12	GJAST-06	4558.29	0.499	50	2/7/2013	13.5	1.35			
6-13	GJAST-06	4557.29	0.498	50	2/7/2013	10.9	1.09			
6-14	GJAST-06	4556.29	0.496	50	2/7/2013	10	1.01			
6-15	GJAST-06	4555.29	0.505	50	2/7/2013	8.3	0.82			
6-15 dup	GJAST-06	4555.29	0.497	50	2/7/2013	10	1.01			
6-16	GJAST-06	4554.29	0.504	50	2/8/2013	23.3	2.31			
6-17	GJAST-06	4553.29	0.502	50	2/8/2013	10.1	1.01			
6-18	GJAST-06	4552.29	0.499	50	2/8/2013	12.9	1.29			
6-19	GJAST-06	4551.29	0.501	50	2/8/2013	17.2	1.72			
6-20	GJAST-06	4550.29	0.502	50	2/8/2013	15.7	1.56			
7-1	GJAST-07	4568.78	0.499	50	2/8/2013	21.2	2.12			
7-2	GJAST-07	4567.78	0.500	50	2/8/2013	28.3	2.83			
7-3	GJAST-07	4566.78	0.505	50	2/8/2013	36.6	3.62			
7-4	GJAST-07	4565.78	0.498	50	2/8/2013	34.1	3.42			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
7-5	GJAST-07	4564.78	0.498	50	2/8/2013	43.5	4.37			
7-6,7	GJAST-07	4563.28	0.499	50	2/8/2013	27.5	2.76			
7-8,9	GJAST-07	4561.28	0.501	50	2/8/2013	43.7	4.36			
7-8,9 dup	GJAST-07	4561.28	0.499	50	2/8/2013	48	4.81			
7-10,11	GJAST-07	4559.28	0.504	50	2/11/2013	48.3	4.79			
7-12,13	GJAST-07	4557.28	0.499	50	2/11/2013	45.5	4.56			
7-14,15	GJAST-07	4555.28	0.500	50	2/11/2013	62.8	6.28			
7-16,17	GJAST-07	4553.28	0.496	50	2/11/2013	18.2	1.83			
7-18,19	GJAST-07	4551.28	0.504	50	2/11/2013	11.4	1.13			
7-20,21	GJAST-07	4549.28	0.498	50	2/11/2013	4	0.40			
7-22,23	GJAST-07	4547.28	0.504	50	2/11/2013	11.3	1.12			
7-24	GJAST-07	4545.78	0.500	50	2/11/2013	11.1	1.11			
8-1,2	GJAST-08	4568.91	0.497	50	2/11/2013	30.4	3.06			
8-3,4	GJAST-08	4566.91	0.503	50	2/11/2013	28.5	2.83			
8-5,6	GJAST-08	4564.91	0.500	50	2/11/2013	33.4	3.34			
8-7	GJAST-08	4563.41	0.498	50	2/11/2013	46.4	4.66			
8-7 dup	GJAST-08	4563.41	0.497	50	2/11/2013	38.7	3.89			
8-8	GJAST-08	4562.41	0.499	50	2/12/2013	24.2	2.42			
8-9	GJAST-08	4561.41	0.496	50	2/12/2013	21.1	2.13			
8-10	GJAST-08	4560.41	0.500	50	2/12/2013	30.3	3.03			
8-11	GJAST-08	4559.41	0.504	50	2/12/2013	35.7	3.54			
8-12	GJAST-08	4558.41	0.500	50	2/12/2013	25.5	2.55			
8-13	GJAST-08	4557.41	0.497	50	2/12/2013	33.6	3.38			
8-14	GJAST-08	4556.41	0.503	50	2/12/2013	22.3	2.22			
8-15	GJAST-08	4555.41	0.498	50	2/12/2013	23.2	2.33			
8-16,17	GJAST-08	4553.91	0.500	50	2/12/2013	15.5	1.55			
8-18,19	GJAST-08	4551.91	0.496	50	2/12/2013	14.4	1.45			
8-20,21	GJAST-08	4549.91	0.499	50	2/12/2013	16.1	1.61			
8-22,23	GJAST-08	4547.91	0.502	50	2/12/2013	12.5	1.25			
8-22,23 dup	GJAST-08	4547.91	0.498	50	2/12/2013	13	1.31			
8-24	GJAST-08	4546.41	0.500	50	2/13/2013	22.5	2.25			
9-1	GJAST-09	4569.67	0.500	50	2/13/2013	20.5	2.05			
9-2	GJAST-09	4568.67	0.496	50	2/13/2013	26.3	2.65			
9-3	GJAST-09	4567.67	0.502	50	2/13/2013	21.1	2.10			
9-4	GJAST-09	4566.67	0.501	50	2/13/2013	30.1	3.00			
9-5	GJAST-09	4565.67	0.500	50	2/13/2013	25.5	2.55			
9-6	GJAST-09	4564.67	0.499	50	2/13/2013	28.6	2.87			
10a-1,2	GJAST-10a	4567.41	0.504	50	2/13/2013	25.3	2.51			
10a-3,4	GJAST-10a	4565.41	0.504	50	2/13/2013	30.6	3.04			
10-5	GJAST-10	4563.53	0.496	50	2/13/2013	24.3	2.45			
10-6	GJAST-10	4562.53	0.502	50	2/13/2013	40.8	4.06			
10-7	GJAST-10	4561.53	0.496	50	2/13/2013	38	3.83			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
10-7 dup	GJAST-10	4561.53	0.503	50	2/13/2013	45.4	4.51			
10-8	GJAST-10	4560.53	0.496	50	2/14/2013	50.3	5.07			
10-9	GJAST-10	4559.53	0.497	50	2/14/2013	28.2	2.84			
10-10	GJAST-10	4558.53	0.503	50	2/14/2013	32.4	3.22			
10-11,12	GJAST-10	4557.03	0.496	50	2/14/2013	28.5	2.87			
10-13,14	GJAST-10	4555.03	0.500	50	2/14/2013	12	1.20			
10-15,16	GJAST-10	4553.03	0.500	50	2/14/2013	15.4	1.54			
10-17,18	GJAST-10	4551.03	0.502	50	2/14/2013	11.5	1.15			
10-19,20	GJAST-10	4549.03	0.504	50	2/14/2013	10.1	1.00			
10-21	GJAST-10	4547.53	0.503	50	2/14/2013	23.7	2.36			
11-1	GJAST-11	4567.64	0.499	50	2/14/2013	29.9	3.00			
11-2	GJAST-11	4566.64	0.498	50	2/14/2013	30.2	3.03			
11-3	GJAST-11	4565.64	0.500	50	2/14/2013	41.9	4.19			
11-3 dup	GJAST-11	4565.64	0.498	50	2/14/2013	47.5	4.77			
11-4	GJAST-11	4564.64	0.497	50	2/20/2013	69.5	6.99			
11-5	GJAST-11	4563.64	0.500	50	2/20/2013	24.8	2.48			
11-6	GJAST-11	4562.64	0.498	50	2/20/2013	63.1	6.34			
11-7	GJAST-11	4561.64	0.501	50	2/20/2013	17.5	1.75			
11-8	GJAST-11	4560.64	0.504	50	2/20/2013	18.2	1.81			
11-9	GJAST-11	4559.64	0.503	50	2/20/2013	12.6	1.25			
11-10,11	GJAST-11	4558.14	0.502	50	2/20/2013	27.7	2.76			
11-12,13	GJAST-11	4556.14	0.500	50	2/20/2013	20	2.00			
11-14,15	GJAST-11	4554.14	0.502	50	2/20/2013	20	1.99			
11-16,17	GJAST-11	4552.14	0.505	50	2/20/2013	20	1.98			
11-18,19	GJAST-11	4550.14	0.499	50	2/20/2013	20	2.00			
11-20	GJAST-11	4548.64	0.502	50	2/20/2013	25.3	2.52			
11-20 dup	GJAST-12	4548.64	0.501	50	2/20/2013	20	2.00			
12-1	GJAST-12	4567.71	0.499	50	2/22/2013	16.3	1.63			
12-2	GJAST-12	4566.71	0.497	50	2/22/2013	4	0.40			
12-3	GJAST-12	4565.71	0.502	50	2/22/2013	15.6	1.55			
12-4	GJAST-12	4564.71	0.499	50	2/22/2013	10	1.00			
12-5	GJAST-12	4563.71	0.501	50	2/22/2013	10	1.00			
12-6	GJAST-12	4562.71	0.499	50	2/22/2013	16.9	1.69			
12-7	GJAST-12	4561.71	0.503	50	2/22/2013	20.2	2.01			
12-8	GJAST-12	4560.71	0.498	50	2/22/2013	4	0.40			
12-9	GJAST-12	4559.71	0.499	50	2/22/2013	4	0.40			
12-10	GJAST-12	4558.71	0.501	50	2/22/2013	10.9	1.09			
12-11,12	GJAST-12	4557.21	0.500	50	2/22/2013	12.7	1.27			
12-13,14	GJAST-12	4555.21	0.499	50	2/22/2013	10	1.00			
12-13,14 dup	GJAST-12	4555.21	0.499	50	2/22/2013	10	1.00			
12-15,16	GJAST-12	4553.21	0.503	50	2/27/2013	10.6	1.05			
12-17,18	GJAST-12	4551.21	0.502	50	2/27/2013	14.9	1.48			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
12-19,20	GJAST-12	4549.21	0.499	50	2/27/2013	16.4	1.64			
13-1	GJAST-13	4567.33	0.498	50	2/27/2013	21.8	2.19			
13-2	GJAST-13	4566.33	0.504	50	2/27/2013	28	2.78			
13-3	GJAST-13	4565.33	0.501	50	2/27/2013	21.1	2.11			
13-4	GJAST-13	4564.33	0.497	50	2/27/2013	27.6	2.78			
13-5	GJAST-13	4563.33	0.500	50	2/27/2013	29.4	2.94			
13-6	GJAST-13	4562.33	0.498	50	2/27/2013	24.9	2.50			
13-7	GJAST-13	4561.33	0.497	50	2/27/2013	34.1	3.43			
13-8	GJAST-13	4560.33	0.497	50	2/27/2013	32.3	3.25			
13-9	GJAST-13	4559.33	0.500	50	2/27/2013	37.9	3.79			
13-9 dup	GJAST-13	4559.33	0.499	50	2/27/2013	44.3	4.44			
13-10	GJAST-13	4558.33	0.499	50	2/28/2013	34.6	3.47			
13-11	GJAST-13	4557.33	0.501	50	2/28/2013	25.5	2.54			
13-12	GJAST-13	4556.33	0.503	50	2/28/2013	34.7	3.45			
13-13	GJAST-13	4555.33	0.498	50	2/28/2013	9.6	0.96			
13-14	GJAST-13	4554.33	0.498	50	2/28/2013	5.3	0.53			
13-15	GJAST-13	4553.33	0.502	50	2/28/2013	8.1	0.81			
13-16	GJAST-13	4552.33	0.503	50	2/28/2013	9.3	0.92			
13-17	GJAST-13	4551.33	0.503	50	2/28/2013	8.4	0.83			
13-18	GJAST-13	4550.33	0.499	50	2/28/2013	12.1	1.21			
13-19	GJAST-13	4549.33	0.499	50	2/28/2013	12.3	1.23			
13-20	GJAST-13	4548.33	0.499	50	2/28/2013	10.5	1.05			
13-21	GJAST-13	4547.33	0.503	50	2/28/2013	18.1	1.80			
13-21 dup	GJAST-13	4547.33	0.496	50	2/28/2013	20.7	2.09			
13-22	GJAST-13	4546.33	0.500	50	3/4/2013	10	1.00			
13-23	GJAST-13	4545.33	0.500	50	3/4/2013	13.4	1.34			
14-1	GJAST-14	4567.48	0.500	50	3/4/2013	23.1	2.31			
14-2	GJAST-14	4566.48	0.498	50	3/4/2013	32.5	3.26			
14-3	GJAST-14	4565.48	0.501	50	3/4/2013	47.5	4.74			
14-4	GJAST-14	4564.48	0.503	50	3/4/2013	35.2	3.50			
14-5	GJAST-14	4563.48	0.501	50	3/4/2013	44	4.39			
14-6	GJAST-14	4562.48	0.495	50	3/4/2013	73.4	7.41			
14-7	GJAST-14	4561.48	0.498	50	3/4/2013	79.1	7.94	183	18,373	
14-8	GJAST-14	4560.48	0.501	50	3/4/2013	75.3	7.51	194	19,361	
14-9	GJAST-14	4559.48	0.499	50	3/4/2013	72.6	7.27	184	18,437	
14-10	GJAST-14	4558.48	0.503	50	3/4/2013	57.7	5.74			confirmed
14-10 dup	GJAST-14	4558.48	0.499	50	3/4/2013	72.2	7.23			
14-11,12	GJAST-14	4556.98	0.499	50	3/8/2013	25.7	2.58			
14-13,14	GJAST-14	4554.98	0.499	50	3/8/2013	7.3	0.73			
14-15,16	GJAST-14	4552.98	0.502	50	3/8/2013	4	0.40			
14-17,18	GJAST-14	4550.98	0.497	50	3/8/2013	8.1	0.81			
14-19,20	GJAST-14	4548.98	0.498	50	3/8/2013	7.6	0.76	170	17,068	

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
14-21	GJAST-14	4547.48	0.498	50	3/8/2013	4	0.40			
15-1	GJAST-15	4567.92	0.501	50	3/8/2013	10	1.00			
15-2	GJAST-15	4566.92	0.502	50	3/8/2013	10	1.00			
15-3	GJAST-15	4565.92	0.498	50	3/8/2013	7.3	0.73			
15-4	GJAST-15	4564.92	0.503	50	3/8/2013	10	0.99			
15-5	GJAST-15	4563.92	0.495	50	3/8/2013	4.9	0.49			
15-6	GJAST-15	4562.92	0.504	50	3/8/2013	10	0.99			
15-6 dup	GJAST-15	4562.92	0.498	50	3/8/2013	10	1.00			
15-7	GJAST-15	4561.92	0.503	50	3/11/2013	10	0.99			
15-8	GJAST-15	4560.92	0.504	50	3/11/2013	11.3	1.12			
15-9	GJAST-15	4559.92	0.498	50	3/11/2013	16.1	1.62			
15-10	GJAST-15	4558.92	0.500	50	3/11/2013	12	1.20			
15-11	GJAST-15	4557.92	0.503	50	3/11/2013	19.6	1.95			
15-12	GJAST-15	4556.92	0.502	50	3/11/2013	41.9	4.17			
15-13	GJAST-15	4555.92	0.499	50	3/11/2013	57.5	5.76	145	14,529	
15-14	GJAST-15	4554.92	0.502	50	3/11/2013	42.9	4.27			
15-15,16	GJAST-15	4553.42	0.501	50	3/11/2013	35.5	3.54			
15-17,18	GJAST-15	4551.42	0.501	50	3/11/2013	25.2	2.51			
15-19,20	GJAST-15	4549.42	0.502	50	3/11/2013	23.9	2.38			
16-1	GJAST-16	4566.7	0.504	50	3/11/2013	23.5	2.33			
16-1 dup	GJAST-16	4566.7	0.499	50	3/11/2013	19.4	1.94			
16-2	GJAST-16	4565.7	0.503	50	3/12/2013	28.7	2.85			
16-3	GJAST-16	4564.7	0.503	50	3/12/2013	26.9	2.67			
16-4	GJAST-16	4563.7	0.502	50	3/12/2013	22	2.19			
16-5	GJAST-16	4562.7	0.502	50	3/12/2013	34.1	3.40			
16-6,7	GJAST-16	4561.2	0.499	50	3/12/2013	25.1	2.52			
16-8,9	GJAST-16	4559.2	0.499	50	3/12/2013	38.5	3.86			
16-10,11	GJAST-16	4557.2	0.501	50	3/12/2013	36.3	3.62			
16-12,13	GJAST-16	4555.2	0.498	50	3/12/2013	59.9	6.01			
16-14,15	GJAST-16	4553.2	0.497	50	3/12/2013	33	3.32			
16-16,17	GJAST-16	4551.2	0.498	50	3/12/2013	17.1	1.72			
16-18,19	GJAST-16	4549.2	0.501	50	3/12/2013	14.7	1.47			
16-20,20.5	GJAST-16	4547.45	0.502	50	3/12/2013	10.9	1.09			
16-20,20.5 dup	GJAST-17	4547.45	0.496	50	3/12/2013	10.3	1.04			
17-1	GJAST-17	4567.26	0.499	50	3/13/2013	13.7	1.37			
17-2	GJAST-17	4566.26	0.503	50	3/13/2013	14.2	1.41			
17-3	GJAST-17	4565.26	0.498	50	3/13/2013	25.7	2.58			
17-4	GJAST-17	4564.26	0.503	50	3/13/2013	22.4	2.23			
17-5	GJAST-17	4563.26	0.497	50	3/13/2013	42.7	4.30			
17-6	GJAST-17	4562.26	0.499	50	3/13/2013	44.4	4.45			
17-7	GJAST-17	4561.26	0.503	50	3/13/2013	35.6	3.54			
17-8	GJAST-17	4560.26	0.496	50	3/13/2013	41	4.13			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
17-9	GJAST-17	4559.26	0.498	50	3/13/2013	26.4	2.65			
17-10	GJAST-17	4558.26	0.498	50	3/13/2013	30	3.01			
17-11,12	GJAST-17	4556.76	0.503	50	3/13/2013	25	2.49			
17-13,14	GJAST-17	4554.76	0.496	50	3/13/2013	17.8	1.79			
17-13,14 dup	GJAST-17	4554.76	0.497	50	3/13/2013	10	1.01			
17-15,16	GJAST-17	4552.76	0.499	50	3/14/2013	10.4	1.04			
17-17,18	GJAST-17	4550.76	0.499	50	3/14/2013	13.8	1.38			
17-19,20	GJAST-17	4548.76	0.500	50	3/14/2013	18.2	1.82			
17-21,22	GJAST-17	4546.76	0.502	50	3/14/2013	16.9	1.68			
17-23,24	GJAST-17	4544.76	0.498	50	3/14/2013	15.2	1.53			
18-1	GJAST-18	4566.72	0.497	50	3/14/2013	19.8	1.99			
18-2	GJAST-18	4565.72	0.499	50	3/14/2013	21.7	2.17			
18-3	GJAST-18	4564.72	0.499	50	3/14/2013	28.1	2.82			
18-4	GJAST-18	4563.72	0.502	50	3/14/2013	32.5	3.24			
18-5	GJAST-18	4562.72	0.502	50	3/14/2013	34.9	3.48			
18-6	GJAST-18	4561.72	0.502	50	3/14/2013	40.5	4.03			
18-7	GJAST-18	4560.72	0.499	50	3/14/2013	64.9	6.50			
18-7 dup	GJAST-18	4560.72	0.501	50	3/14/2013	25.2	2.51			
18-8	GJAST-18	4559.72	0.500	50	3/15/2013	27.8	2.78			
18-9	GJAST-18	4558.72	0.503	50	3/15/2013	26.9	2.67			
18-10	GJAST-18	4557.72	0.501	50	3/15/2013	35.4	3.53			
18-11,12	GJAST-18	4556.22	0.502	50	3/15/2013	44.4	4.42			
18-13,14	GJAST-18	4554.22	0.500	50	3/15/2013	33	3.30			
18-15	GJAST-18	4552.72	0.504	50	3/15/2013	18.6	1.85			
18-16	GJAST-18	4551.72	0.501	50	3/15/2013	10.3	1.03			
18-17	GJAST-18	4550.72	0.503	50	3/15/2013	20.4	2.03			
18-18	GJAST-18	4549.72	0.498	50	3/15/2013	11.1	1.11			
18-19	GJAST-18	4548.72	0.500	50	3/15/2013	13.6	1.36			
18-20	GJAST-18	4547.72	0.501	50	3/15/2013	14.9	1.49			
18-21	GJAST-18	4546.72	0.500	50	3/15/2013	12.2	1.22			
18-21 dup	GJAST-19	4546.72	0.501	50	3/15/2013	8.4	0.84			
19-1	GJAST-19	4567.28	0.501	50	3/18/2013	10	1.00			
19-2	GJAST-19	4566.28	0.500	50	3/18/2013	12.1	1.21			
19-3	GJAST-19	4565.28	0.501	50	3/18/2013	13.5	1.35			
19-4	GJAST-19	4564.28	0.502	50	3/18/2013	6.2	0.62			
19-5	GJAST-19	4563.28	0.503	50	3/18/2013	16.2	1.61			
19-6	GJAST-19	4562.28	0.500	50	3/18/2013	56.4	5.64	177	17,700	
19-7	GJAST-19	4561.28	0.499	50	3/18/2013	14.6	1.46			
19-8	GJAST-19	4560.28	0.502	50	3/18/2013	29.9	2.98	232	23,108	
19-9	GJAST-19	4559.28	0.499	50	3/18/2013	40.6	4.07	200	20,040	
19-10	GJAST-19	4558.28	0.502	50	3/18/2013	25.3	2.52			
19-11,12	GJAST-19	4556.78	0.501	50	3/18/2013	17	1.70			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
19-13,14	GJAST-19	4554.78	0.502	50	3/18/2013	4.8	0.48			
19-13,14 dup	GJAST-19	4554.78	0.498	50	3/18/2013	3.3	0.33			
19-15,16	GJAST-19	4552.78	0.502	50	3/20/2013	9.1	0.91	166	16,534	
19-17,18	GJAST-19	4550.78	0.503	50	3/20/2013	13.5	1.34			
19-19,20	GJAST-19	4548.78	0.502	50	3/20/2013	20.3	2.02			
20-1	GJAST-20	4567.16	0.501	50	3/20/2013	16.9	1.69			
20-2	GJAST-20	4566.16	0.499	50	3/20/2013	21.5	2.15			
20-3	GJAST-20	4565.16	0.503	50	3/20/2013	15.9	1.58			
20-4	GJAST-20	4564.16	0.501	50	3/20/2013	39.7	3.96			
20-5	GJAST-20	4563.16	0.504	50	3/20/2013	32.8	3.25			
20-6	GJAST-20	4562.16	0.502	50	3/20/2013	36.5	3.64			
20-7	GJAST-20	4561.16	0.499	50	3/20/2013	27.9	2.80			
20-8	GJAST-20	4560.16	0.499	50	3/20/2013	34.8	3.49			
20-8 dup	GJAST-20	4560.16	0.501	50	3/20/2013	40.7	4.06			
20-9	GJAST-20	4559.16	0.499	50	3/21/2013	60.3	6.04	170	17,034	
20-10	GJAST-20	4558.16	0.497	50	3/21/2013	103.3	10.39	206	20,724	
20-11,12	GJAST-20	4556.66	0.498	50	3/21/2013	84.3	8.46	180	18,072	
20-13,14	GJAST-20	4554.66	0.500	50	3/21/2013	39.6	3.96			
20-15,16	GJAST-20	4552.66	0.499	50	3/21/2013	60.4	6.05	199	19,940	
20-17,18	GJAST-20	4550.66	0.497	50	3/21/2013	42.5	4.28			
20-19,20	GJAST-20	4548.66	0.497	50	3/21/2013	13.6	1.37			
21-1	GJAST-21	4566.7	0.499	50	3/21/2013	15.7	1.57			
21-2	GJAST-21	4565.7	0.501	50	3/21/2013	18.1	1.81			
21-3	GJAST-21	4564.7	0.497	50	3/21/2013	32.3	3.25			
21-4	GJAST-21	4563.7	0.500	50	3/21/2013	34.2	3.42			
21-4 dup	GJAST-21	4563.7	0.501	50	3/21/2013	43.8	4.37			
21-5	GJAST-21	4562.7	0.500	50	3/22/2013	25.3	2.53			
21-6	GJAST-21	4561.7	0.501	50	3/22/2013	13.9	1.39			
21-7	GJAST-21	4560.7	0.500	50	3/22/2013	12.2	1.22			
21-8	GJAST-21	4559.7	0.496	50	3/22/2013	13.9	1.40			
21-9	GJAST-21	4558.7	0.499	50	3/22/2013	17.5	1.75			
21-10	GJAST-21	4557.7	0.501	50	3/22/2013	17.7	1.77			
21-11,12	GJAST-21	4556.2	0.496	50	3/22/2013	15.7	1.58			
21-13,14	GJAST-21	4554.2	0.504	50	3/22/2013	11.8	1.17			
21-15,16	GJAST-21	4552.2	0.500	50	3/22/2013	10	1.00			
21-17,18	GJAST-21	4550.2	0.497	50	3/22/2013	16.4	1.65			
21-19,20	GJAST-21	4548.2	0.499	50	3/22/2013	10	1.00			
21-19,20 dup	GJAST-21	4548.2	0.499	50	3/22/2013	10	1.00			
21-21	GJAST-22	4546.7	0.502	50	3/25/2013	12	1.20			
22-1	GJAST-22	4566.84	0.505	50	3/25/2013	17.6	1.74			
22-2	GJAST-22	4565.84	0.498	53	3/25/2013	26.3	2.80			
22-3	GJAST-22	4564.84	0.496	50	3/25/2013	19.9	2.01			

Table C-3. Microwave Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	Comments
22-4	GJAST-22	4563.84	0.505	50	3/25/2013	10	0.99			
22-5	GJAST-22	4562.84	0.501	50	3/25/2013	10	1.00			
22-6	GJAST-22	4561.84	0.499	50	3/25/2013	16.6	1.66			
22-7	GJAST-22	4560.84	0.497	50	3/25/2013	10	1.01			
22-8	GJAST-22	4559.84	0.499	50	3/26/2013	8.4	0.84			Rupture membrane failed 3/25. Redigested 3/26.
22-9	GJAST-22	4558.84	0.501	50	3/25/2013	11.4	1.14			
22-10	GJAST-22	4557.84	0.499	50	3/25/2013	10.5	1.05			
22-10 dup	GJAST-22	4557.84	0.497	50	3/25/2013	10.2	1.03			
22-11,12	GJAST-22	4556.34	0.501	50	3/26/2013	21.3	2.13			
22-13,14	GJAST-22	4554.34	0.505	50	3/26/2013	11.2	1.11			
22-15,16	GJAST-22	4552.34	0.498	50	3/26/2013	10	1.00			
22-17,18	GJAST-22	4550.34	0.498	50	3/26/2013	10	1.00			
22-19,20	GJAST-22	4548.34	0.504	50	3/26/2013	10	0.99			
22-21,22	GJAST-22	4546.34	0.497	50	3/26/2013	17.3	1.74			
22-21,22 dup	GJAST-22	4546.34	0.500	50	3/26/2013	10	1.00			

Note:

The number after the dash in the field sample number is depth in feet below ground surface. (For example, “1-9” is a sample at 9 feet deep for boring GJAST-01).
Values in boldface type indicate concentrations are below detection limits.

Abbreviations:

dup = duplicate
ft amsl = feet above mean sea level
g = grams
g/L = grams per liter
µg/g = micrograms per gram
µg/L = micrograms per liter
mg/L = milligrams per liter
mL = milliliters

Table C-4. Total Digestions

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	LiBO ₂ Used in Fusion (g)	Comments
1-1	GJAST-01	4569.25	0.201	50	3/27/2013	10.9	2.71			1.00	
1-2	GJAST-01	4568.25	0.201	50	3/27/2013	18.9	4.70			1.00	
1-3	GJAST-01	4567.25	0.199	50	3/27/2013	22.4	5.63			1.00	
1-4	GJAST-01	4566.25	0.201	50	3/27/2013	18	4.48			1.00	
1-5	GJAST-01	4565.25	0.200	50	3/28/2013	17.9	4.48			1.00	
1-6	GJAST-01	4564.25	0.200	50	3/28/2013	18.4	4.60			1.00	
1-7	GJAST-01	4563.25	0.201	50	3/28/2013	17.5	4.35			1.00	
1-8	GJAST-01	4562.25	0.200	50	3/28/2013	23.1	5.78			1.00	
1-9	GJAST-01	4561.25	0.201	50	3/28/2013	20.3	5.05			1.00	
1-10	GJAST-01	4560.25	0.202	50	3/28/2013	17.3	4.28			1.00	
1-11	GJAST-01	4559.25	0.202	50	3/28/2013	17.5	4.33			1.00	
1-12	GJAST-01	4558.25	0.202	50	3/28/2013	14.2	3.51			1.00	
1-13	GJAST-01	4557.25	0.199	50	4/4/2013	14.9	3.74			1.00	
1-17	GJAST-01	4553.25	0.200	50	4/4/2013	17.3	4.33			1.00	
1-19	GJAST-01	4551.25	0.202	50	4/4/2013	15	3.71			1.00	Small amount of soil left in crucible after digestion, redigested 4/5
1-19 rerun	GJAST-01	4551.25	0.198	50	4/5/2013	17.3	4.37			1.20	
1-23	GJAST-01	4547.25	0.201	50	4/4/2013	18.5	4.60			1.00	
2-1	GJAST-02	4568.69	0.202	50	4/4/2013	10.5	2.60			1.00	
2-2	GJAST-02	4567.69	0.200	50	4/5/2013	10.2	2.55			1.00	
2-3	GJAST-02	4566.69	0.202	50	4/5/2013	12.6	3.12			1.00	
2-3 dup	GJAST-02	4566.69	0.200	50	4/5/2013	14.1	3.53			1.00	
2-4	GJAST-02	4565.69	0.201	50	4/5/2013	19.5	4.85			1.20	
2-5	GJAST-02	4564.69	0.202	50	4/5/2013	13.9	3.44			1.20	
2-6	GJAST-02	4563.69	0.201	50	4/5/2013	10.3	2.56			1.20	
2-7	GJAST-02	4562.69	0.200	50	4/9/2013	16.1	4.03			1.20	
2-8	GJAST-02	4561.69	0.200	50	4/9/2013	15.4	3.85			1.20	
2-9	GJAST-02	4560.69	0.200	50	4/9/2013	12.7	3.18			1.20	
2-10	GJAST-02	4559.69	0.199	50	4/9/2013	14.7	3.69			1.20	
2-11	GJAST-02	4558.69	0.200	50	4/9/2013	13	3.25			1.20	
2-12	GJAST-02	4557.69	0.201	50	4/9/2013	11.9	2.96			1.20	
2-13	GJAST-02	4556.69	0.198	50	4/9/2013	11.5	2.90			1.20	
2-14	GJAST-02	4555.69	0.198	50	4/9/2013	10.9	2.75			1.20	
2-15	GJAST-02	4554.69	0.202	50	4/10/2013	13.5	3.34			1.20	
2-16	GJAST-02	4553.69	0.202	50	4/10/2013	15	3.71			1.20	
2-17	GJAST-02	4552.69	0.200	50	4/10/2013	11	2.75			1.20	
2-18	GJAST-02	4551.69	0.199	50	4/10/2013	10.8	2.71			1.20	
2-19	GJAST-02	4550.69	0.199	50	4/10/2013	11	2.76			1.20	
2-20	GJAST-02	4549.69	0.199	50	4/10/2013	11.8	2.96			1.20	
2-21	GJAST-02	4548.69	0.200	50	4/10/2013	12.7	3.18			1.20	

Table C-4. Total Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	LiBO ₂ Used in Fusion (g)	Comments
2-22	GJAST-02	4547.69	0.199	50	4/10/2013	10.7	2.69			1.20	
2-22 dup	GJAST-02	4547.69	0.200	50	4/11/2013	11.7	2.93			1.20	
2-23	GJAST-02	4546.69	0.201	50	4/11/2013	12.7	3.16			1.20	
2-24	GJAST-02	4545.69	0.201	50	4/11/2013	21.4	5.32			1.20	
3-1	GJAST-03	4569.49	0.198	50	4/11/2013	10.2	2.58			1.20	
3-2	GJAST-03	4568.49	0.202	50	4/11/2013	10.1	2.50			1.20	
3-3	GJAST-03	4567.49	0.199	50	4/11/2013	11.3	2.84			1.20	
3-4	GJAST-03	4566.49	0.200	50	4/11/2013	13.5	3.38			1.20	
3-5	GJAST-03	4565.49	0.200	50	4/15/2013	13.4	3.35			1.20	
3-6	GJAST-03	4564.49	0.202	50	4/15/2013	10.9	2.70			1.20	3 very small black flecks left after digestion
3-7	GJAST-03	4563.49	0.202	50	4/15/2013	12.7	3.14			1.20	
3-8	GJAST-03	4562.49	0.202	50	4/15/2013	9.2	2.28			1.20	
3-9	GJAST-03	4561.49	0.202	50	4/15/2013	10.9	2.70			1.20	
3-10	GJAST-03	4560.49	0.199	50	4/15/2013	10	2.51			1.20	
3-11	GJAST-03	4559.49	0.201	50	4/15/2013	12.7	3.16			1.20	
3-12	GJAST-03	4558.49	0.199	50	4/15/2013	11.7	2.94			1.20	
3-13	GJAST-03	4557.49	0.199	50	4/16/2013	11.5	2.89			1.20	
3-14	GJAST-03	4556.49	0.199	50	4/16/2013	11.2	2.81			1.20	
3-15	GJAST-03	4555.49	0.200	50	4/16/2013	11.7	2.93			1.20	
3-16	GJAST-03	4554.49	0.201	50	4/16/2013	9.3	2.31			1.20	
3-17	GJAST-03	4553.49	0.200	50	4/16/2013	7.2	1.80			1.20	
3-17 dup	GJAST-03	4553.49	0.202	50	4/16/2013	10.8	2.67			1.20	
3-18	GJAST-03	4552.49	0.200	50	4/16/2013	7.6	1.90			1.20	
3-19	GJAST-03	4551.49	0.199	50	4/17/2013	9.3	2.34			1.20	
3-20	GJAST-03	4550.49	0.199	50	4/17/2013	9.7	2.44			1.20	
3-21	GJAST-03	4549.49	0.201	50	4/17/2013	10.6	2.64			1.20	
3-22	GJAST-03	4548.49	0.198	50	4/17/2013	11.8	2.98			1.20	
3-23	GJAST-03	4547.49	0.200	50	4/17/2013	9.5	2.38			1.20	
3-24	GJAST-03	4546.49	0.199	50	4/17/2013	10	2.51			1.20	
14-1	GJAST-14	4567.48	0.200	50	4/17/2013	14.2	3.55			1.20	
14-2	GJAST-14	4566.48	0.199	50	4/18/2013	16.6	4.17			1.20	Using new batch of LiBO ₂
14-3	GJAST-14	4565.48	0.200	50	4/18/2013	23.1	5.78			1.20	
14-4	GJAST-14	4564.48	0.202	50	4/18/2013	18.4	4.55			1.20	Two very small black flecks left after digestion
14-5	GJAST-14	4563.48	0.199	50	4/18/2013	25.2	6.33			1.20	
14-6	GJAST-14	4562.48	0.200	50	4/19/2013	37.1	9.28			1.20	
14-7	GJAST-14	4561.48	0.100	50	2/26/2013	17.2	8.60	55.9	27,950	1.00	
14-7 dup	GJAST-14	4561.48	0.101	50	2/26/2013	17.9	8.86	55.8	27,624	1.00	
14-7	GJAST-14	4561.48	0.199	50	4/19/2013	40.9	10.28	113	28,392	1.20	
14-8	GJAST-14	4560.48	0.199	50	4/19/2013	39.5	9.92	112	28,141	1.20	
14-9	GJAST-14	4559.48	0.200	50	4/19/2013	38.9	9.73	115	28,750	1.20	

Table C-4. Total Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	LiBO ₂ Used in Fusion (g)	Comments
14-10	GJAST-14	4558.48	0.200	50	4/22/2013	34.6	8.65			1.20	
14-11,12	GJAST-14	4556.98	0.200	50	4/22/2013	23.3	5.83			1.20	
14-11,12 dup	GJAST-14	4554.98	0.200	50	4/22/2013	18.2	4.55			1.20	
14-13,14	GJAST-14	4554.98	0.200	50	4/22/2013	15.5	3.88			1.20	
14-15,16	GJAST-14	4552.98	0.202	50	4/22/2013	11.7	2.90			1.20	
14-17,18	GJAST-14	4550.98	0.199	50	4/22/2013	10.3	2.59			1.20	
14-19,20	GJAST-14	4548.98	0.200	50	4/22/2013	10.4	2.60	117	29,250	1.20	two very small colorless flecks left after digestion
14-21	GJAST-14	4547.48	0.199	50	5/6/2013	11.1	2.79			1.20	
15-1	GJAST-15	4567.92	0.202	50	5/6/2013	9.6	2.38			1.20	one very small black fleck left after digestion
15-2	GJAST-15	4566.92	0.200	50	5/6/2013	9.5	2.38			1.20	
15-3	GJAST-15	4565.92	0.202	50	5/6/2013	13.6	3.37			1.20	
15-4	GJAST-15	4564.92	0.200	50	5/15/2013	11.4	2.85			1.20	
15-5	GJAST-15	4563.92	0.202	50	5/15/2013	11.7	2.90			1.20	
15-6	GJAST-15	4562.92	0.202	50	5/15/2013	11.1	2.75			1.20	
15-7	GJAST-15	4561.92	0.200	50	5/15/2013	12.7	3.18			1.20	
15-8	GJAST-15	4560.92	0.201	50	5/16/2013	11.3	2.81			1.20	
15-9	GJAST-15	4559.92	0.201	50	5/16/2013	10.7	2.66			1.20	
15-10	GJAST-15	4558.92	0.201	50	5/16/2013	12.5	3.11			1.20	
15-11	GJAST-15	4557.92	0.202	50	5/16/2013	12.3	3.04			1.20	
15-12	GJAST-15	4556.92	0.201	50	5/17/2013	19	4.73			1.20	
15-13	GJAST-15	4555.92	0.200	50	5/17/2013	28.7	7.18	85.0	21,250	1.20	
15-14	GJAST-15	4554.92	0.201	50	5/17/2013	21.7	5.40			1.20	
15-14 dup	GJAST-15	4554.92	0.201	50	5/17/2013	20.9	5.20			1.20	
15-15,16	GJAST-15	4553.42	0.200	50	5/20/2013	17.9	4.48			1.20	
15-17,18	GJAST-15	4551.42	0.201	50	5/20/2013	10.4	2.59			1.20	
15-19,20	GJAST-15	4549.42	0.201	50	5/20/2013	10.6	2.64			1.20	
19-1	GJAST-19	4567.28	0.200	50	5/20/2013	16.7	4.18			1.20	
19-2	GJAST-19	4566.28	0.200	50	5/20/2013	12.7	3.18			1.20	
19-3	GJAST-19	4565.28	0.201	50	5/20/2013	13.2	3.28			1.20	
19-4	GJAST-19	4564.28	0.200	50	5/21/2013	13.1	3.28			1.20	
19-5	GJAST-19	4563.28	0.201	50	5/21/2013	18.7	4.65			1.20	
19-5 dup	GJAST-19	4563.28	0.200	50	5/21/2013	16	4.00			1.20	
19-6	GJAST-19	4562.28	0.201	50	5/21/2013	38	9.45	105	26,119	1.20	
19-7	GJAST-19	4561.28	0.201	50	5/21/2013	28.8	7.16			1.20	
19-8	GJAST-19	4560.28	0.200	50	5/21/2013	31.2	7.80	136	34,000	1.20	
19-9	GJAST-19	4559.28	0.200	50	5/21/2013	30.5	7.63	135	33,750	1.20	small white speck left after digestion
19-10	GJAST-19	4558.28	0.200	50	5/21/2013	21.9	5.48			1.20	
19-11,12	GJAST-19	4556.78	0.200	50	5/22/2013	21.3	5.33			1.20	
19-13,14	GJAST-19	4554.78	0.201	50	5/22/2013	9.5	2.36			1.20	
19-15,16	GJAST-19	4552.78	0.201	50	5/22/2013	11.2	2.79	120	29,851	1.20	

Table C-4. Total Digestions (continued)

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Digestion Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)	LiBO ₂ Used in Fusion (g)	Comments
19-17,18	GJAST-19	4550.78	0.201	50	5/22/2013	13.7	3.41			1.20	
19-19,20	GJAST-19	4548.78	0.201	50	5/22/2013	13.5	3.36			1.20	small speck left after digestion
20-1	GJAST-20	4567.16	0.200	50	5/22/2013	18.9	4.73			1.20	
20-2	GJAST-20	4566.16	0.201	50	5/22/2013	16.5	4.10			1.20	
20-3	GJAST-20	4565.16	0.201	50	5/22/2013	16.2	4.03			1.20	
20-4	GJAST-20	4564.16	0.200	50	5/23/2013	18.4	4.60			1.20	
20-5	GJAST-20	4563.16	0.201	50	5/23/2013	22	5.47			1.20	
20-6	GJAST-20	4562.16	0.201	50	5/23/2013	26	6.47			1.20	
20-7	GJAST-20	4561.16	0.200	50	5/23/2013	21.3	5.33			1.20	
20-8	GJAST-20	4560.16	0.201	50	5/23/2013	24.4	6.07			1.20	
20-9	GJAST-20	4559.16	0.200	50	5/23/2013	35.4	8.85	105	26,250	1.20	
20-9 dup	GJAST-20	4559.16	0.201	50	5/23/2013	33.2	8.26	97.4	24,229	1.20	small speck left after digestion
20-10	GJAST-20	4558.16	0.201	50	5/24/2013	52.9	13.16	123	30,597	1.20	
20-11,12	GJAST-20	4556.66	0.201	50	5/24/2013	44.9	11.17	141	35,075	1.20	
20-13,14	GJAST-20	4554.66	0.201	50	5/24/2013	31.3	7.79			1.20	
20-15,16	GJAST-20	4552.66	0.200	50	5/24/2013	38.5	9.63	122	30,500	1.20	
20-17,18	GJAST-20	4550.66	0.201	50	5/24/2013	26.7	6.64			1.20	
20-19,20	GJAST-20	4548.66	0.200	50	5/24/2013	18.5	4.63			1.20	
20-10	GJAST-20	4558.16	0.204	50	12/17/2013	94.8	23.24	128	31,373	1.20	-230 size fraction
20-10 dup	GJAST-20	4558.16	0.201	50	12/17/2013	87.3	21.72	128	31,841	1.20	-230 size fraction

Note:
The number after the dash in the field sample number is depth in feet below ground surface. (For example, “1-9” is a sample at 9 feet deep for boring GJAST-01).

Abbreviations:
dup = duplicate
ft amsl = feet above mean sea level
g = grams
g/L = grams per liter
LiBO₂ = lithium metaborate
µg/g = micrograms per gram
µg/L = micrograms per liter
mg/L = milligrams per liter
mL = milliliters

Table C-5. Ammonium Oxalate Extractions

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Dry Weight (g)	Volume (mL)	Extraction Date	Uranium (µg/L)	Uranium (µg/g)	Iron (mg/L)	Iron (µg/g)
14-7	GJAST-14	4561.48	0.500	100	5/30/2013	39.5	7.90	4	870
14-8	GJAST-14	4560.48	0.501	100	5/30/2013	38.4	7.66	4	792
14-9	GJAST-14	4559.48	0.497	100	5/30/2013	34.1	6.86	4	809
14-19,20	GJAST-14	4548.98	0.505	100	5/30/2013	2.6	0.51	15	3030
15-13	GJAST-15	4555.92	0.504	100	5/30/2013	24.9	4.94	16	3175
19-6	GJAST-19	4562.28	0.500	100	5/30/2013	31	6.20	4	770
19-8	GJAST-19	4560.28	0.500	100	5/30/2013	24.2	4.84	7	1398
19-9	GJAST-19	4559.28	0.499	100	5/30/2013	23.2	4.65	8	1551
19-15,16	GJAST-19	4552.78	0.501	100	5/30/2013	3	0.60	14	2794
20-9	GJAST-20	4559.16	0.503	100	5/30/2013	25	4.97	3	660
20-10	GJAST-20	4558.16	0.502	100	5/30/2013	50.1	9.98	5	948
20-11,12	GJAST-20	4556.66	0.503	100	5/30/2013	35.5	7.06	8	1676
20-15,16	GJAST-20	4552.66	0.496	100	5/30/2013	33.3	6.71	18.3	3690
20-15,16 dup	GJAST-20	4552.66	0.502	100	5/30/2013	34	6.77	19.5	3884

Note:
The number after the dash in the field sample number is depth in feet below ground surface. (For example, “1-9” is a sample at 9 feet deep for boring GJAST-01).

Abbreviations:
dup = duplicate
ft amsl = feet above mean sea level
g = gram
g/L = gram per liter
µg/L = microgram per liter
µg/g = microgram per gram
mg/L = milligram per liter
mL = milliliter

Table C-6. Summary of Samples with Iron Extraction Data

Field Sample Number	Field Boring Number	Sample Elevation (ft amsl)	Total Digestion Uranium (µg/g)	Total Digestion Iron (µg/g)	AmmOx Uranium (µg/g)	AmmOx Iron (µg/g)	Carbonate Uranium (µg/g)	Carbonate iron (µg/g)	5% Nitric Acid Uranium (µg/g)	5% Nitric Acid Iron (µg/g)	5% Nitric Acid Molybdenum (µg/g)	5% Nitric Acid Manganese (µg/g)	Microwave Uranium (µg/g)	Microwave Iron (µg/g)
14-7	GJAST-14	4561.48	10.28	28,392	7.90	870	6.68	4.3	7.43	1570	1.50	215	7.94	18,373
14-8	GJAST-14	4560.48	9.92	28,141	7.66	792	6.53	4.9	8.30	1554	1.44	186	7.51	19,361
14-9	GJAST-14	4559.48	9.73	28,750	6.86	809	6.44	10.1	7.41	1636	1.25	209	7.27	18,437
14-19,20	GJAST-14	4548.98	2.60	29,250	0.51	3030	0.29	35.6	0.49	718	0.50	50	0.76	17,068
15-13	GJAST-15	4555.92	7.18	21,250	4.94	3175	4.27	334.0	6.93	2790	0.50	222	5.76	14,529
19-6	GJAST-19	4562.28	9.45	26,119	6.20	770	5.08	3.1	6.24	2604	0.66	282	5.64	17,700
19-8	GJAST-19	4560.28	7.80	34,000	4.84	1398	4.44	40.8	5.69	3919	1.08	244	2.98	23,108
19-9	GJAST-19	4559.28	7.63	33,750	4.65	1551	4.14	14.9	4.94	3059	1.90	152	4.07	20,040
19-15,16	GJAST-19	4552.78	2.79	29,851	0.60	2794	0.37	27.6	0.63	2130	2.39	127	0.91	16,534
20-9	GJAST-20	4559.16	8.85	26,250	4.97	660	3.53	0.1	5.86	1600	1.35	181	6.04	17,034
20-10	GJAST-20	4558.16	13.16	30,597	9.98	948	6.01	0.0	9.99	1828	2.82	271	10.39	20,724
20-11,12	GJAST-20	4556.66	11.17	35,075	7.06	1676	6.52	19.3	7.88	1990	2.26	119	8.46	18,072
20-15,16	GJAST-20	4552.66	9.63	30,500	6.71	3690	3.82	9.4	5.93	1693	2.56	122	6.05	19,940

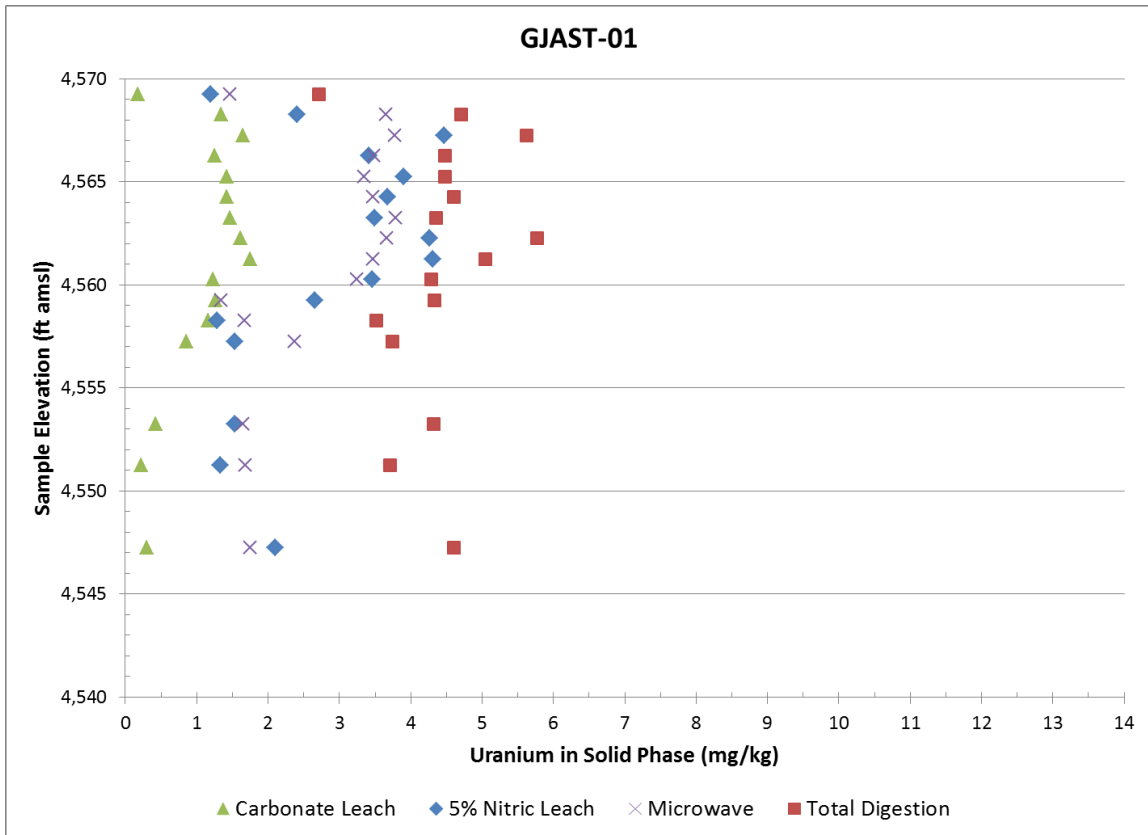
Note:
The number after the dash in the field sample number is depth in feet below ground surface. (For example, “1-9” is a sample at 9 feet deep for boring GJAST-01).

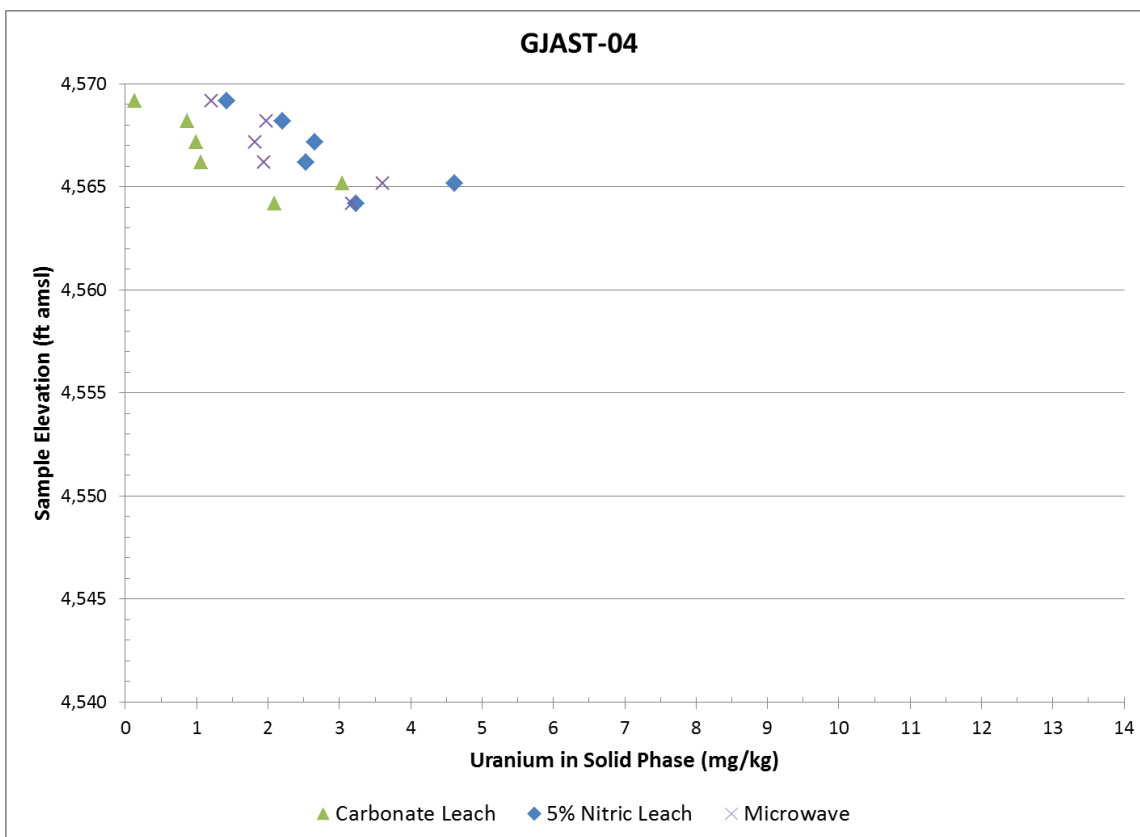
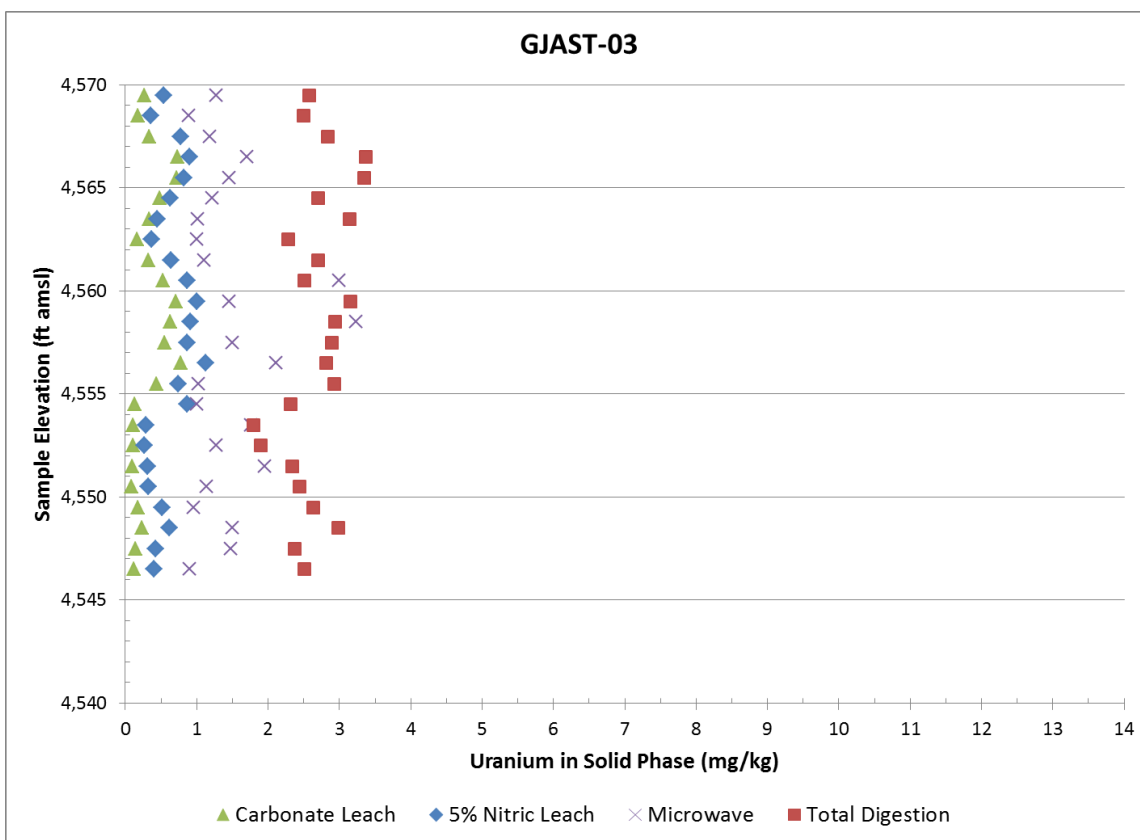
Abbreviations:
AmmOx = ammonium oxalate leach
ft amsl = feet above mean sea level
µg/g = micrograms per gram

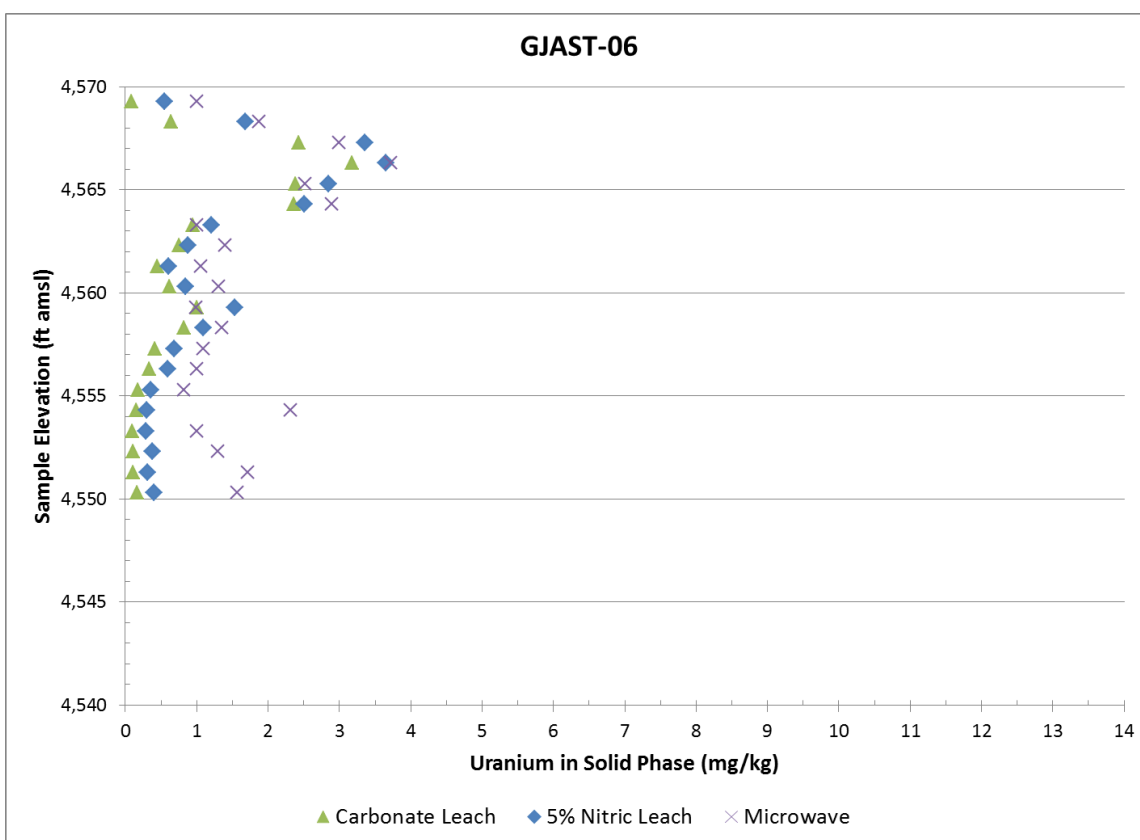
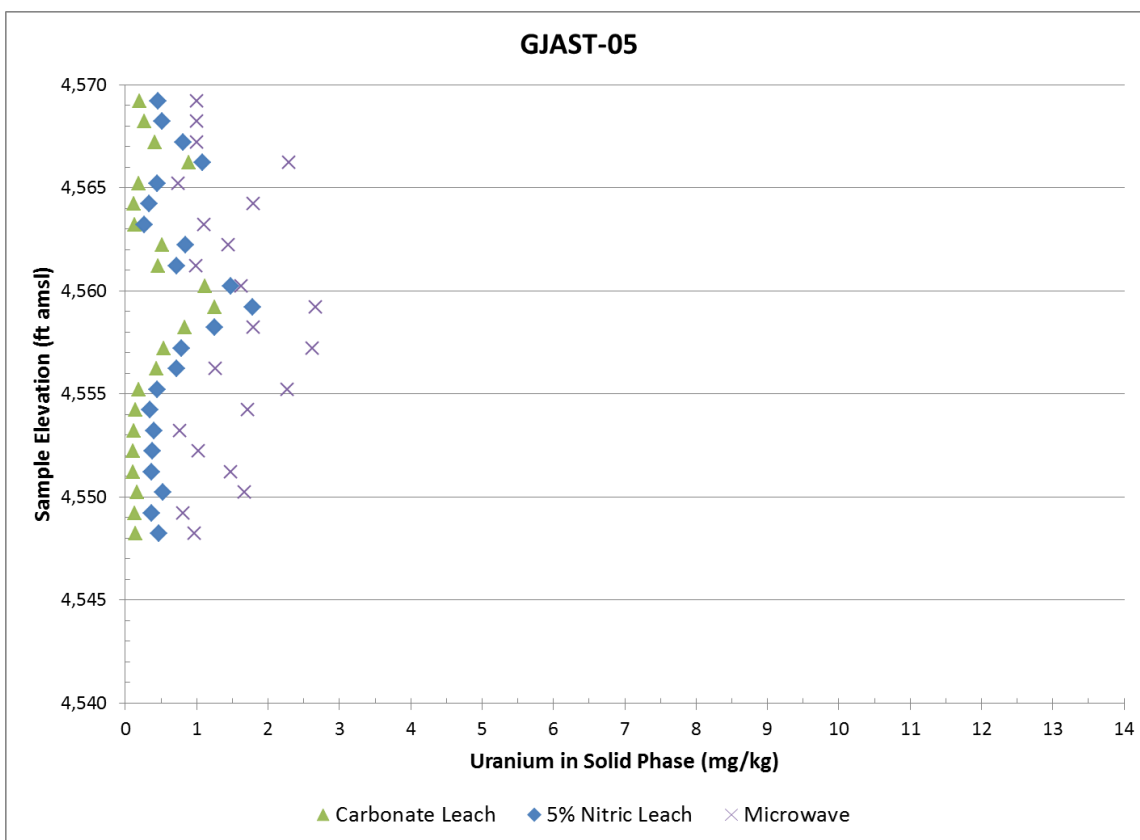
**Figures for
GJAST-01 through GJAST-22**

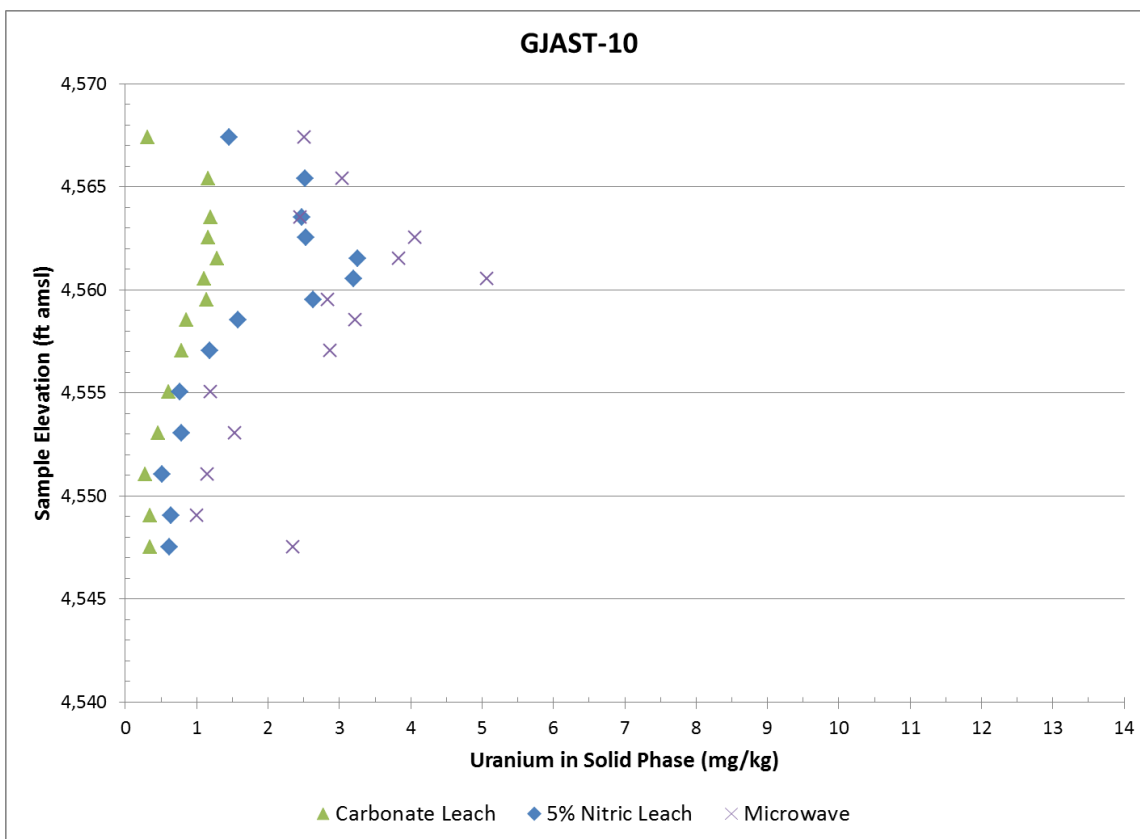
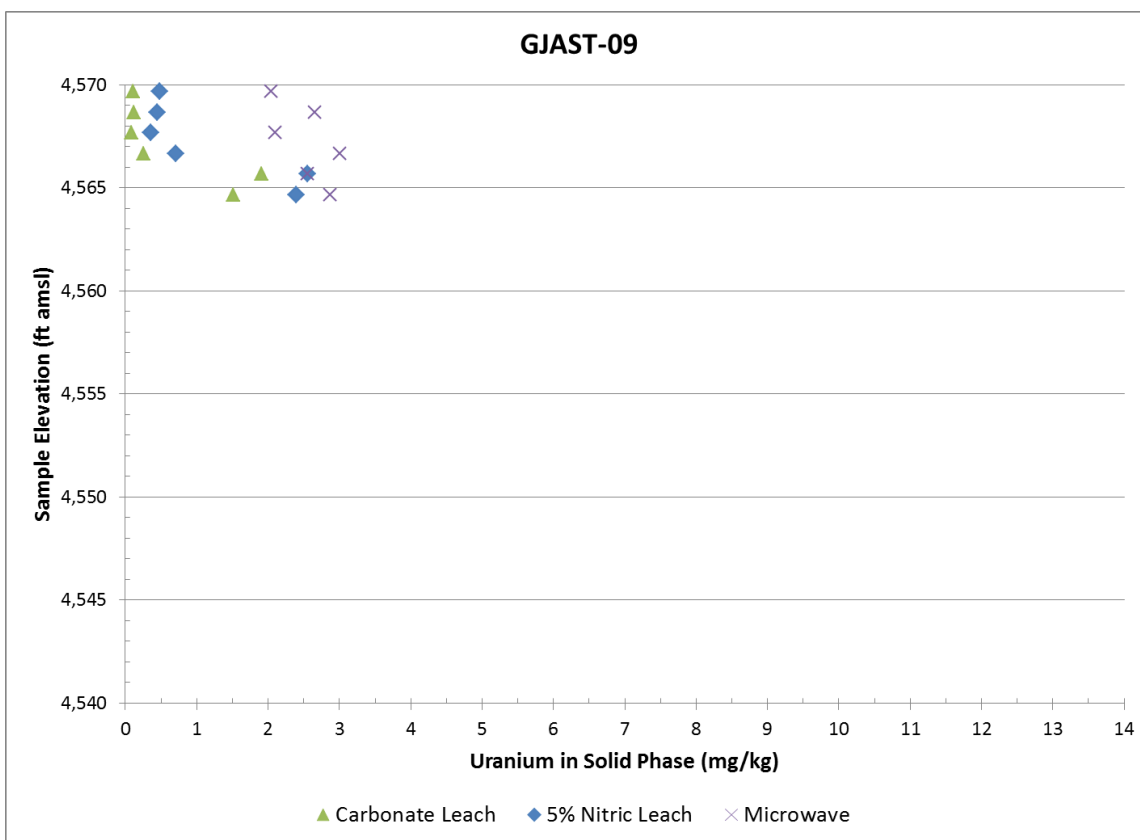
**Uranium in Solid Phase with Extraction by Carbonate Leach,
5% Nitric Acid Leach, Microwave Digestion, and Total Digestion**

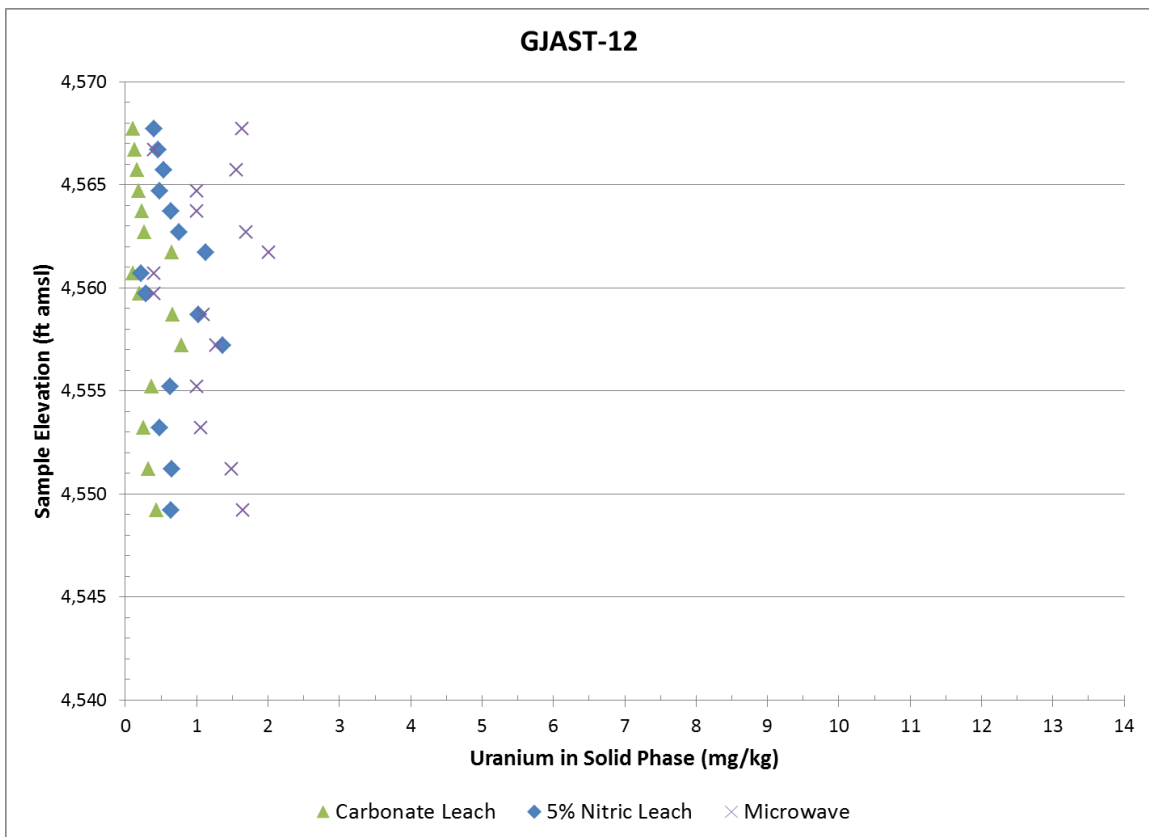
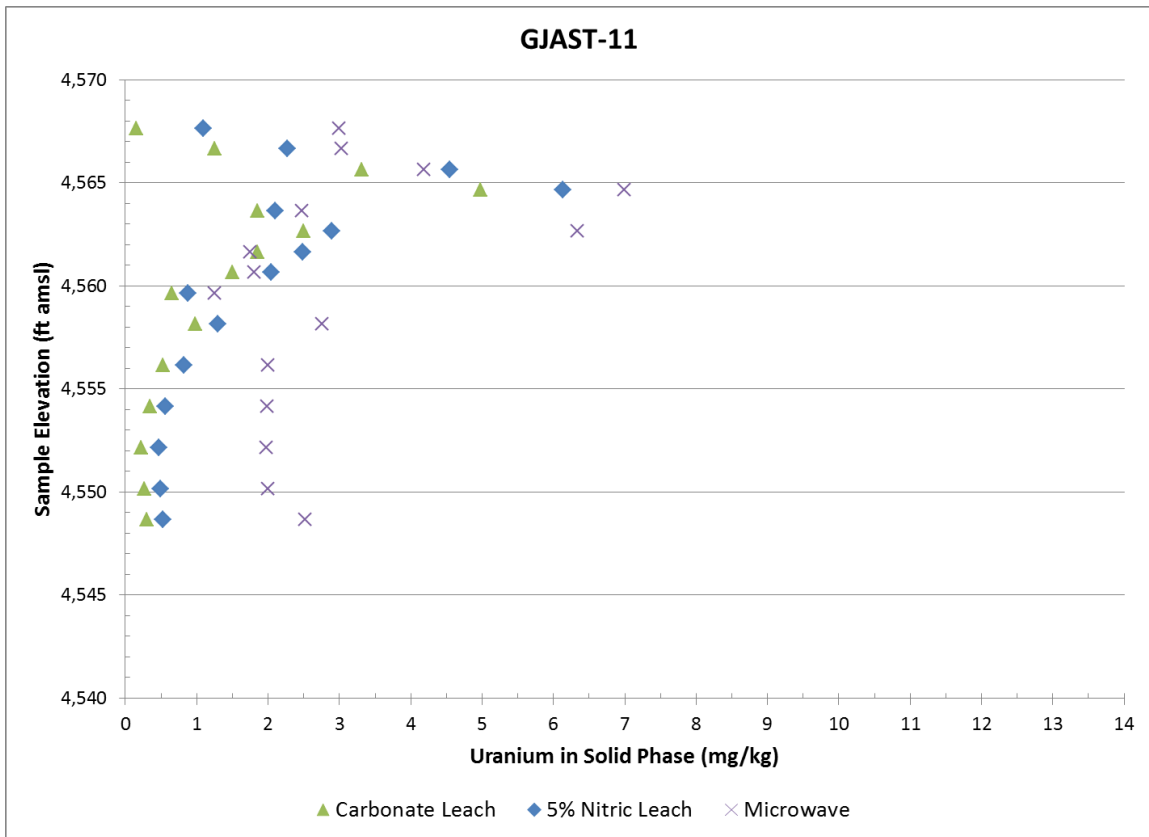
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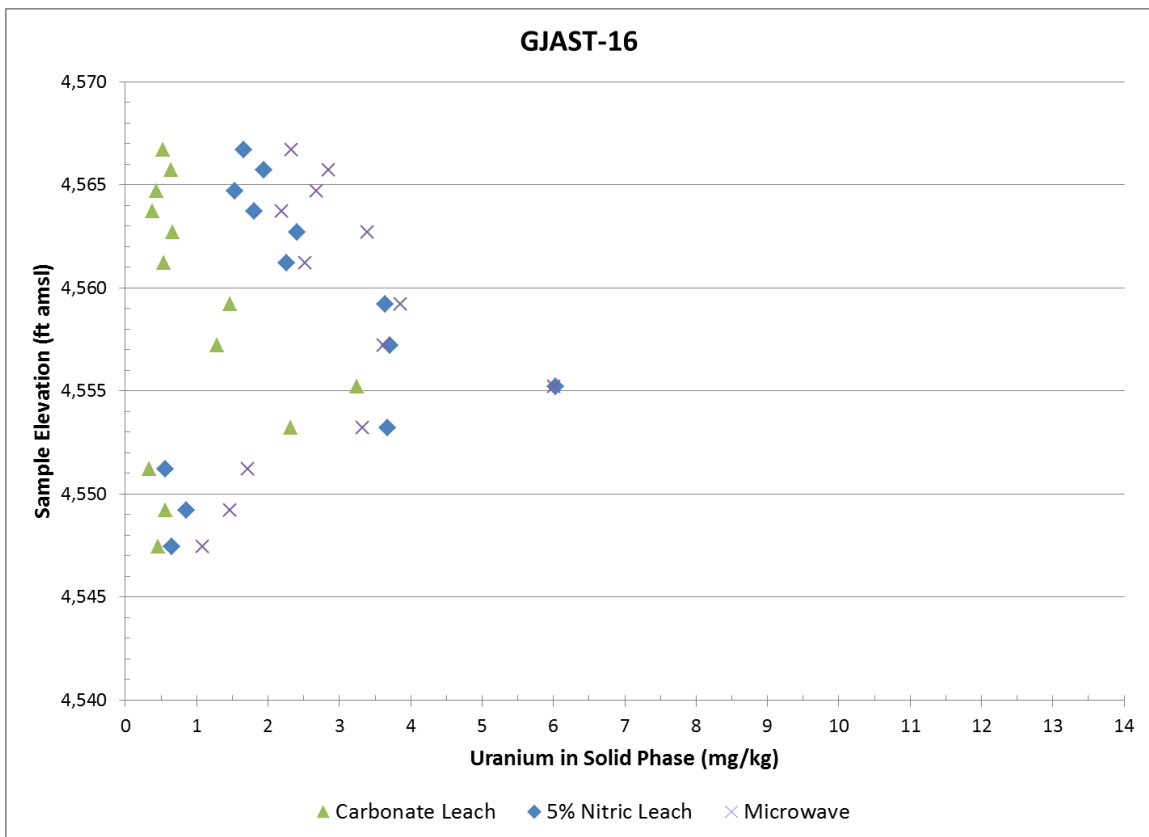
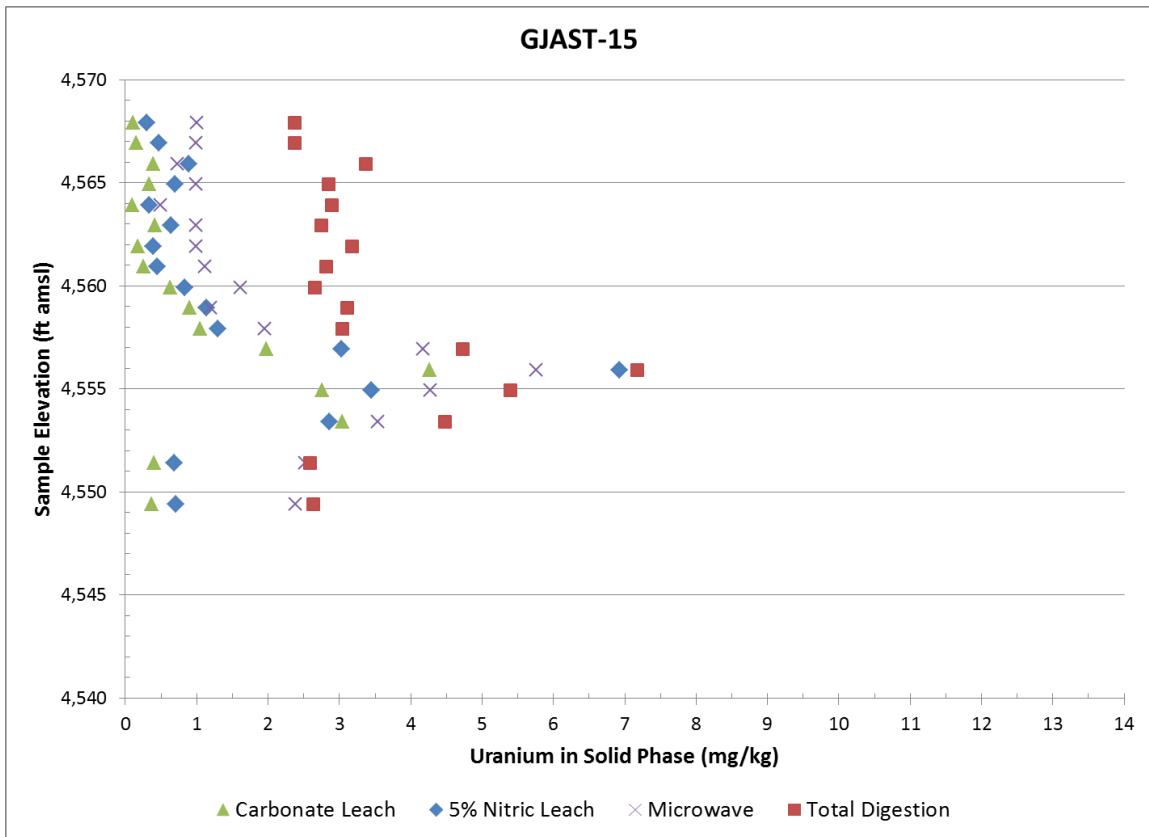


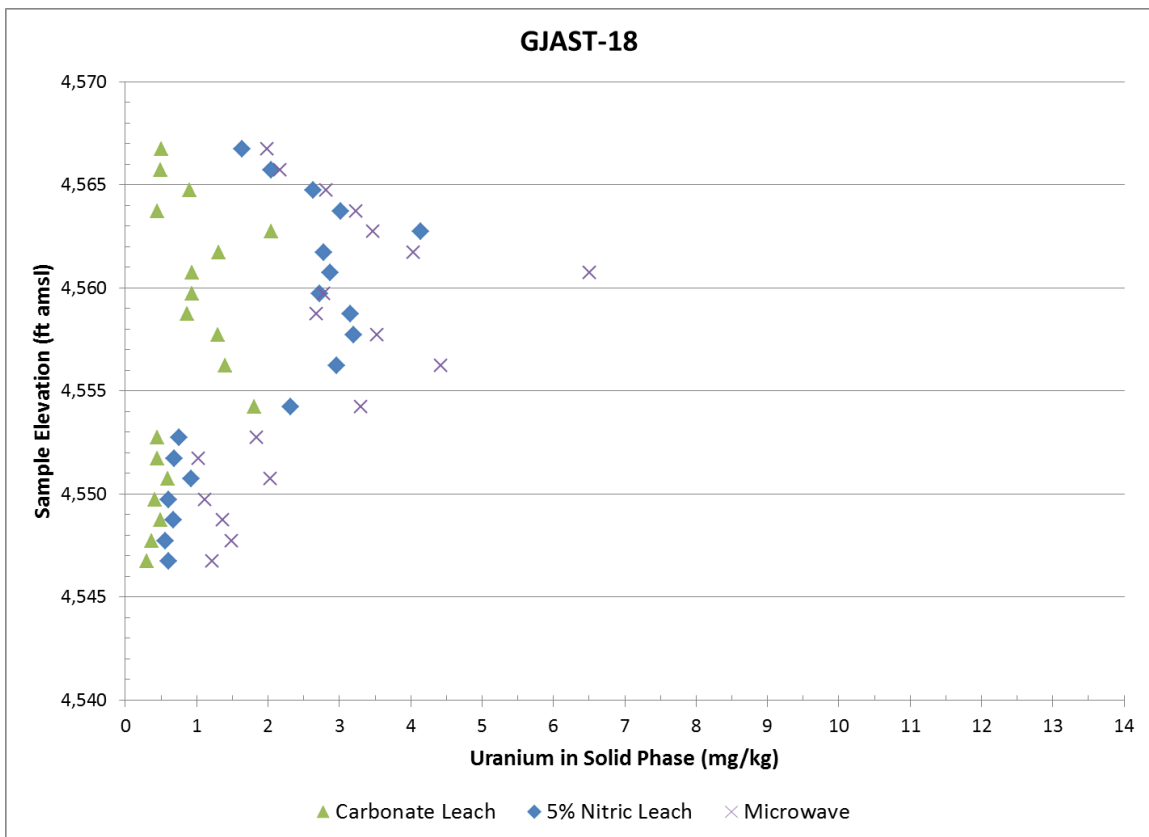
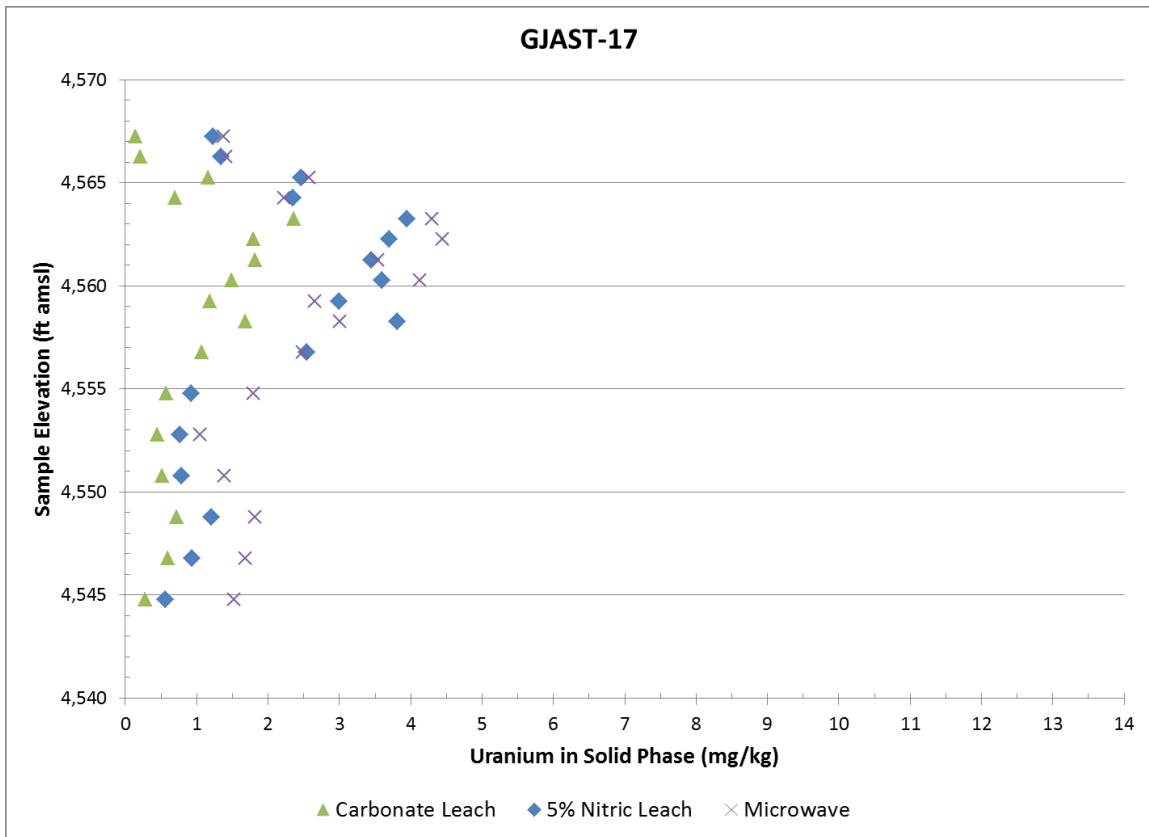


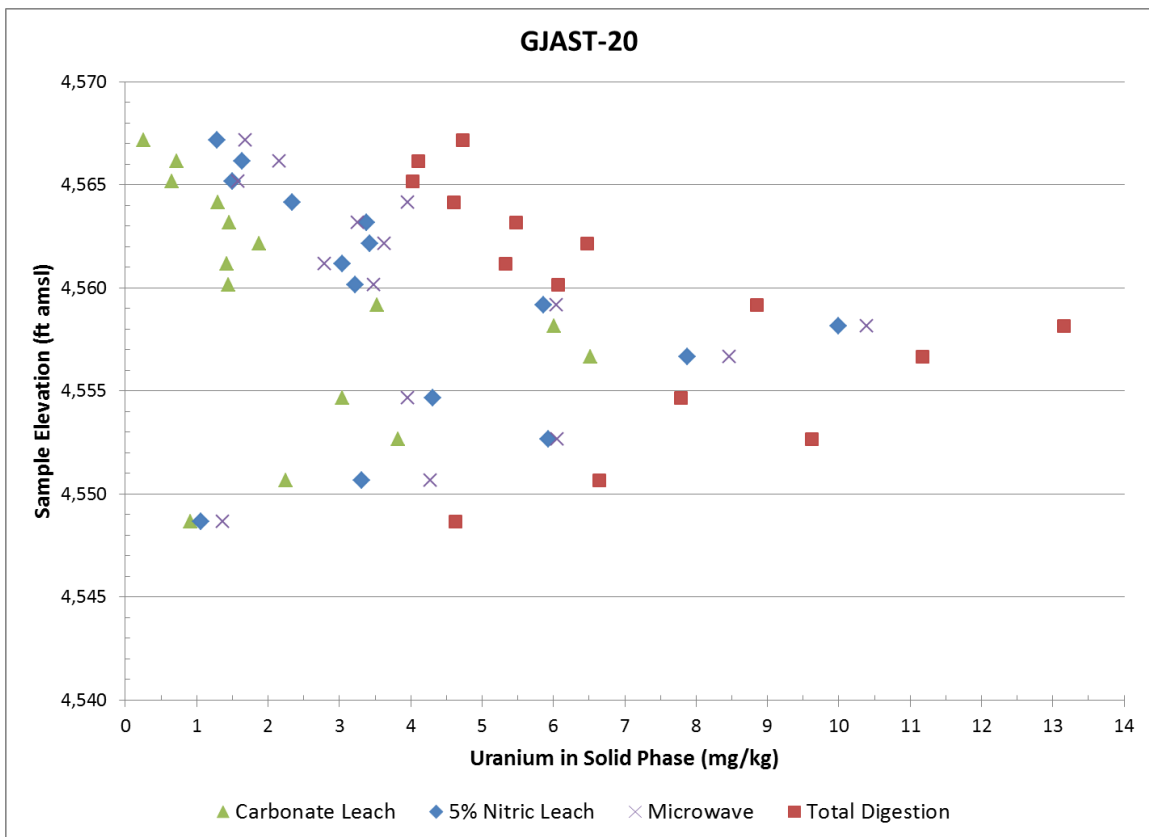
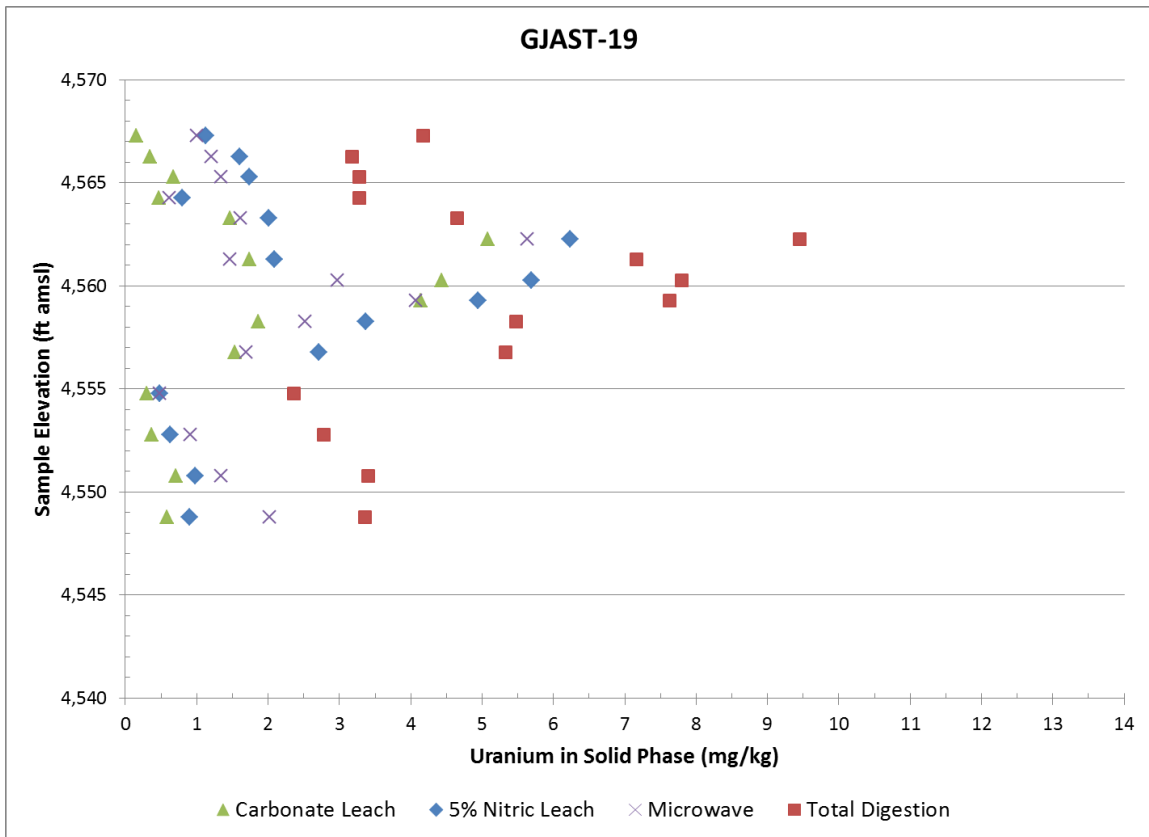


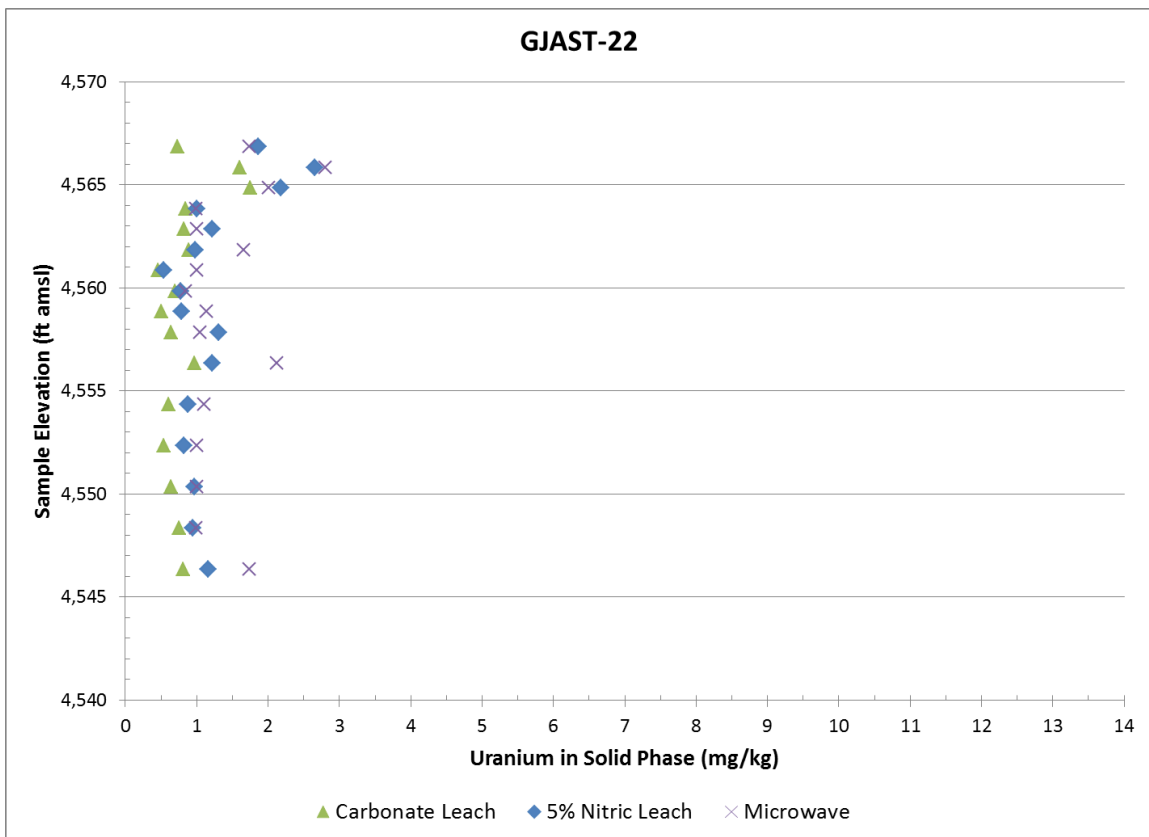
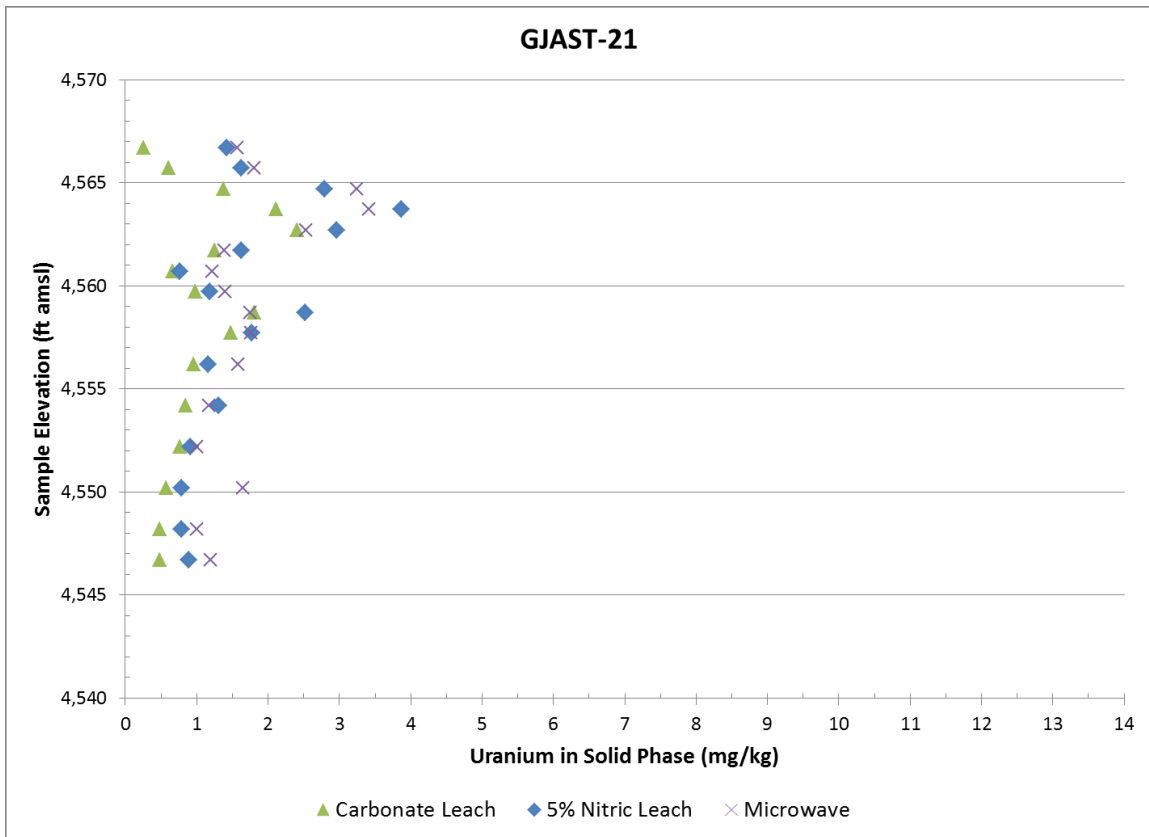










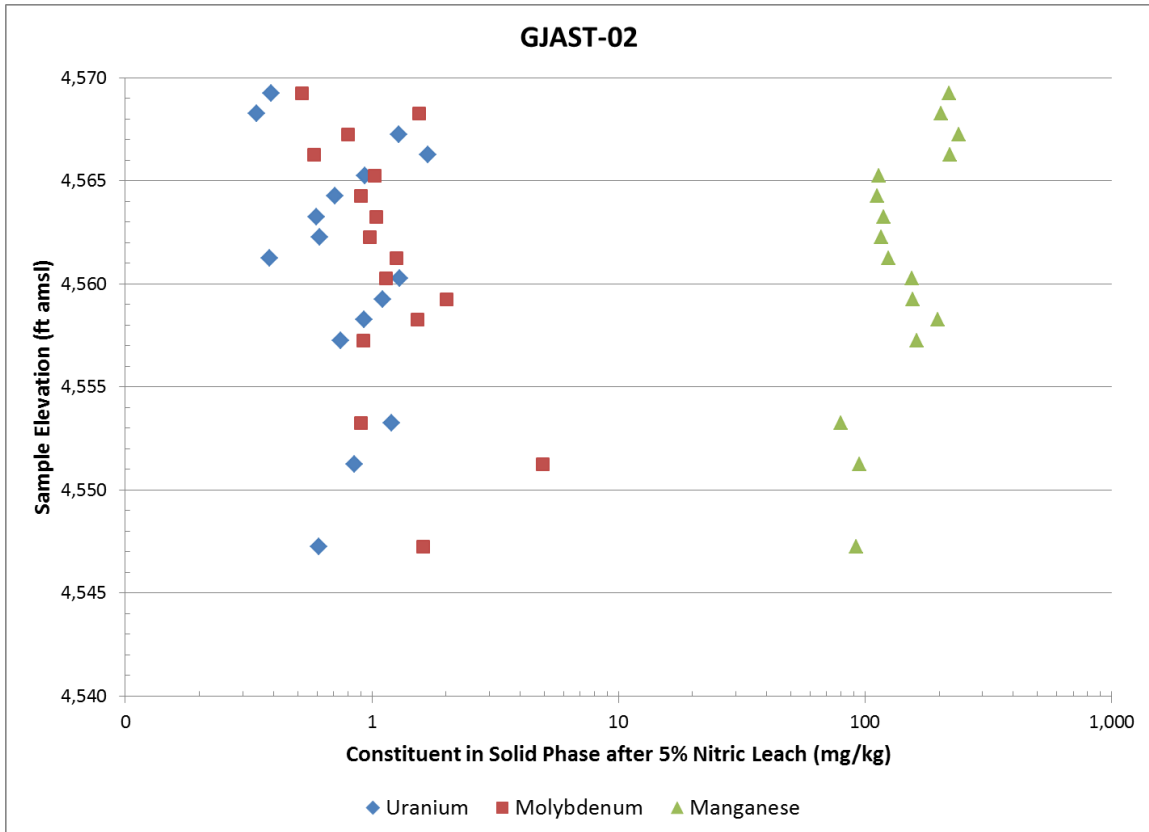
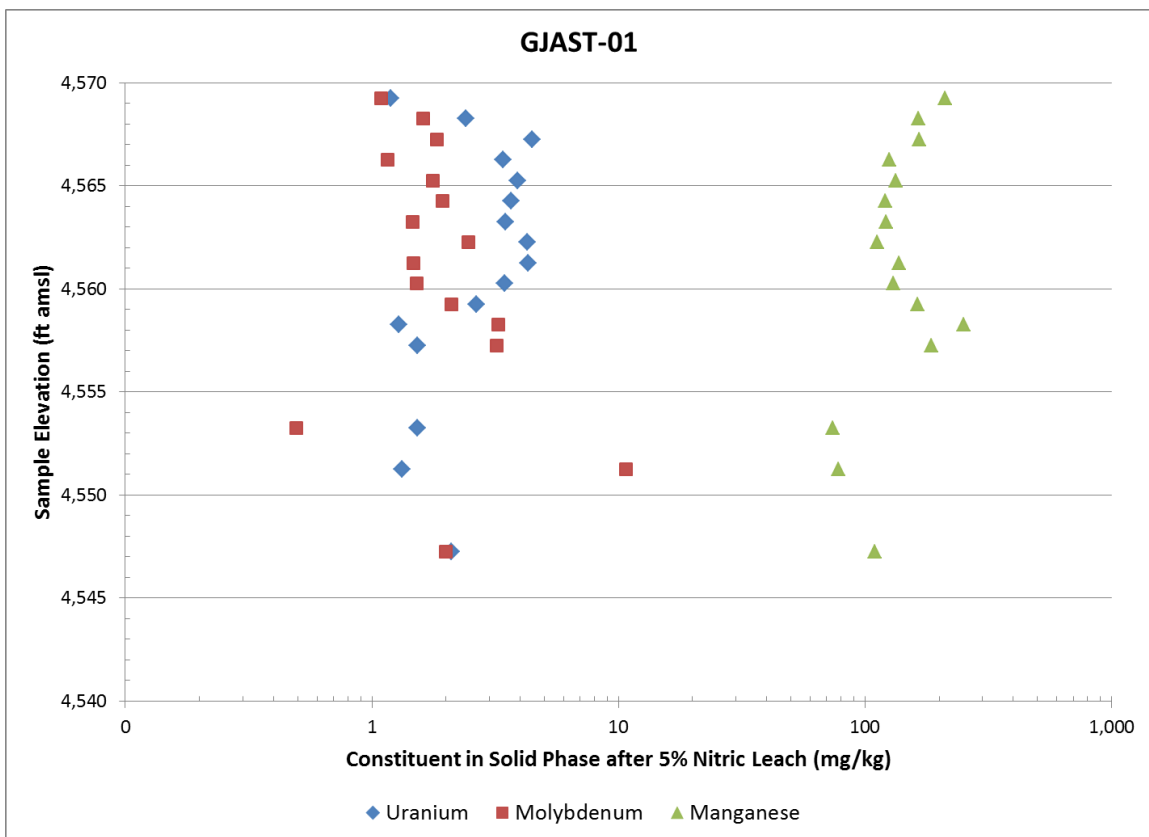


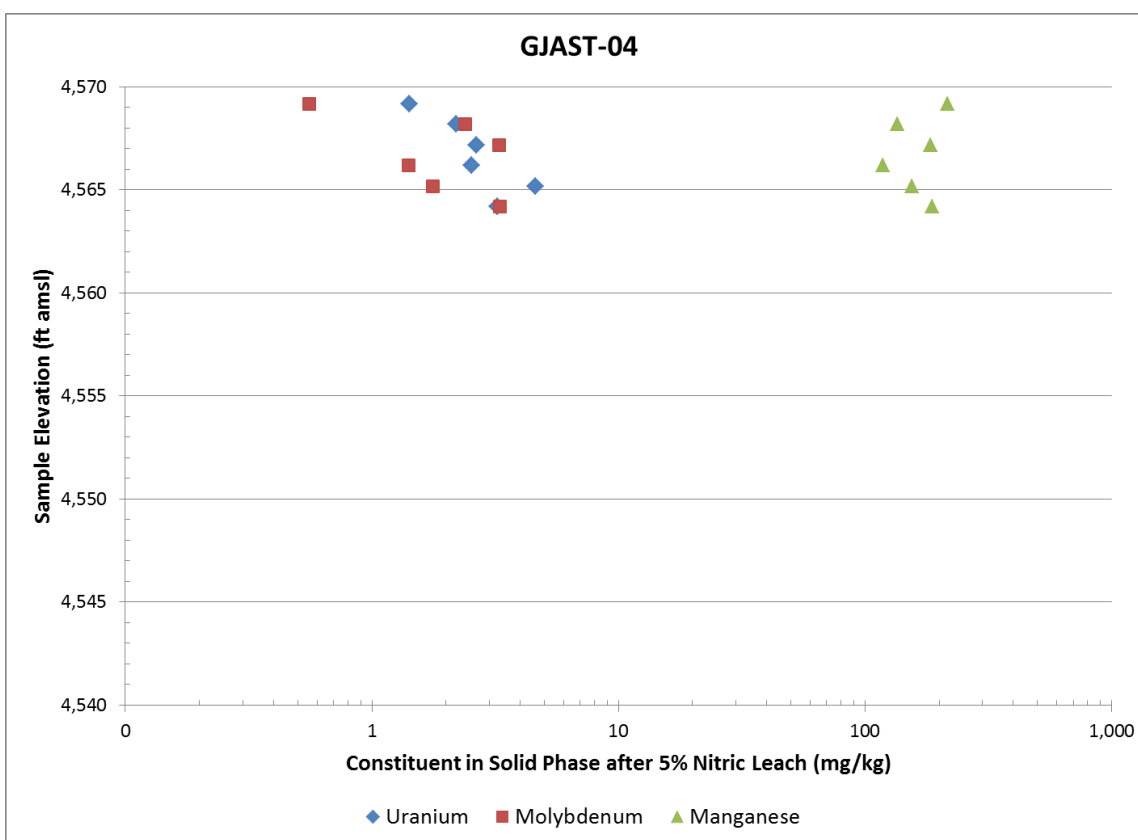
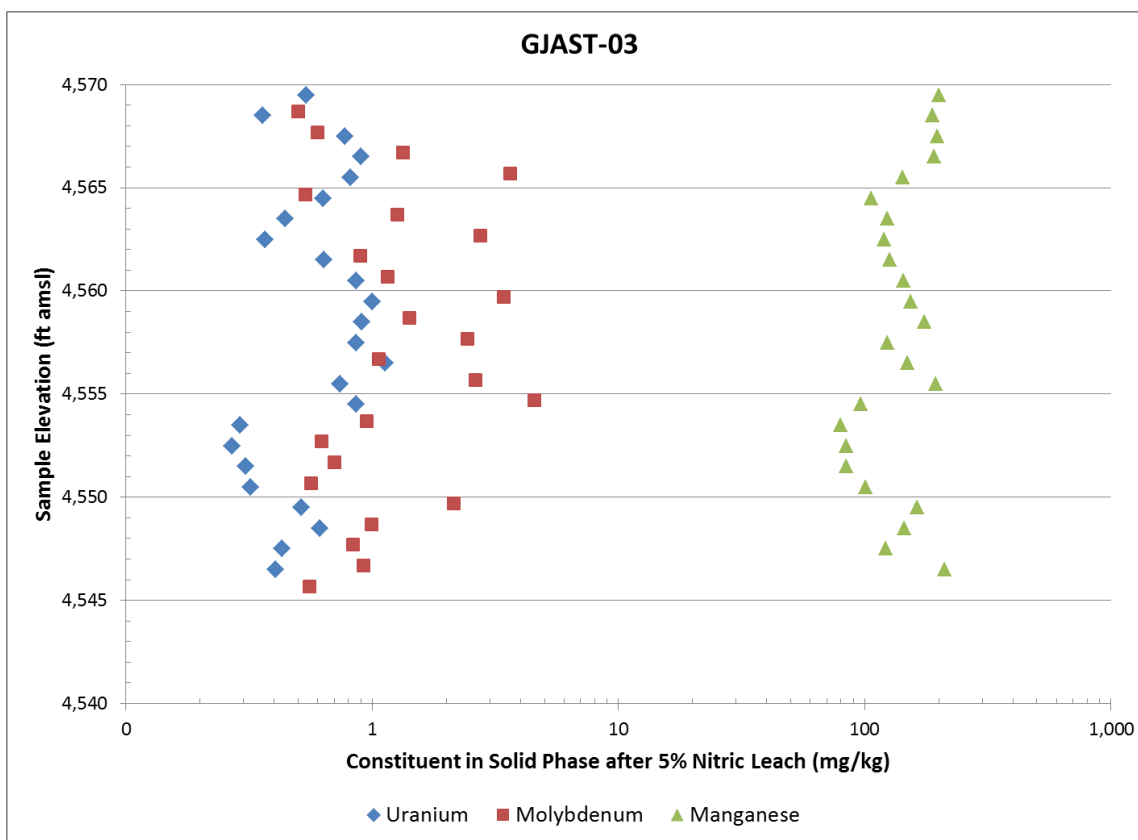
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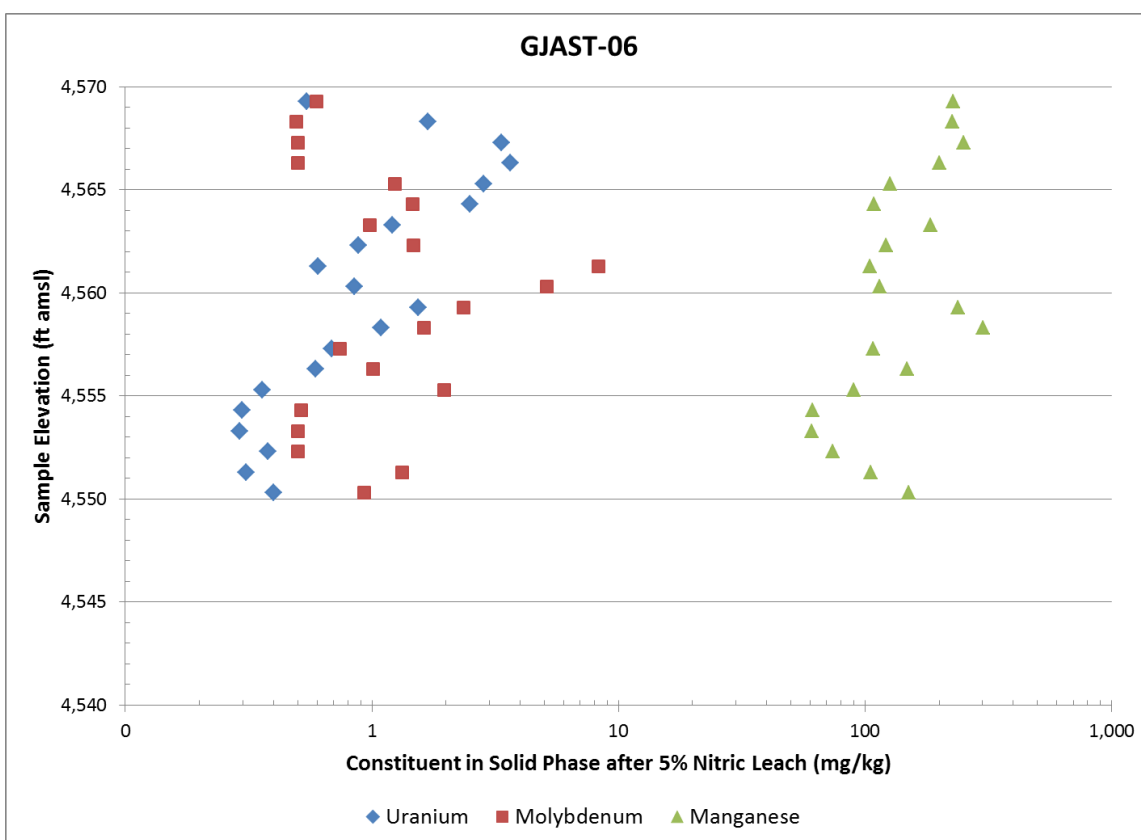
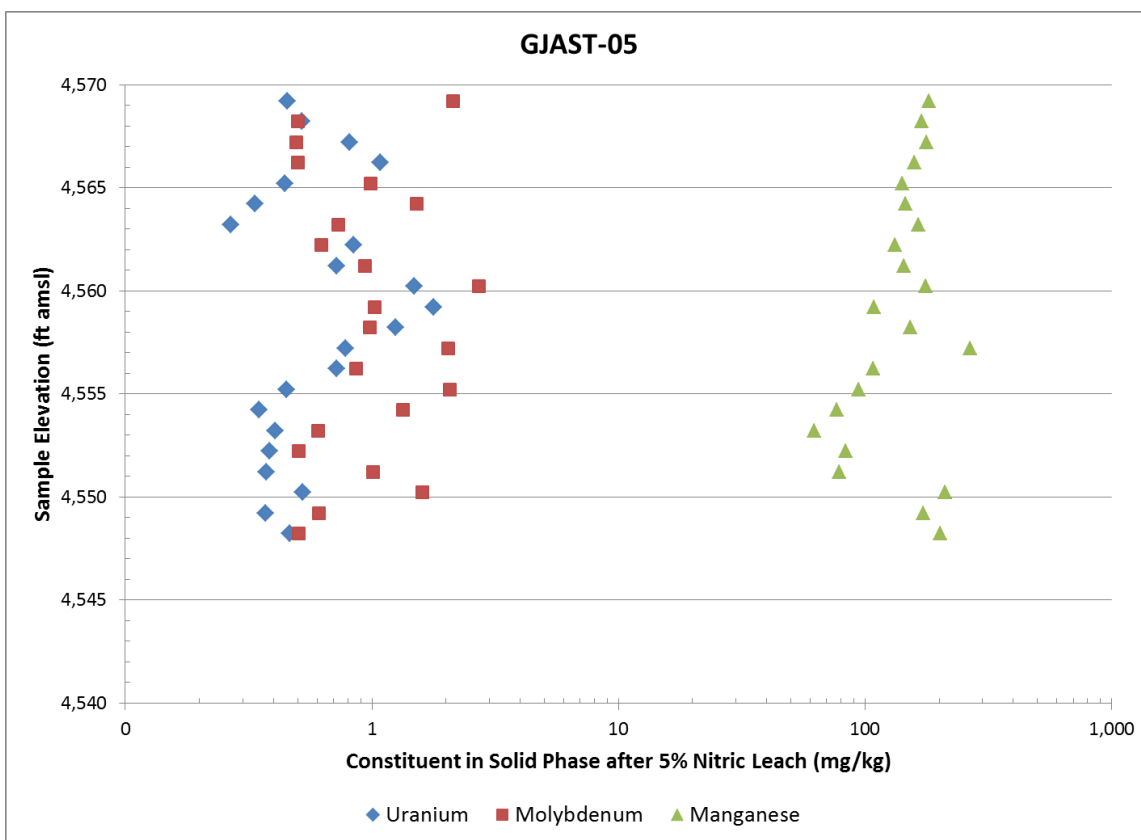
**Figures for
GJAST-01 through GJAST-22**

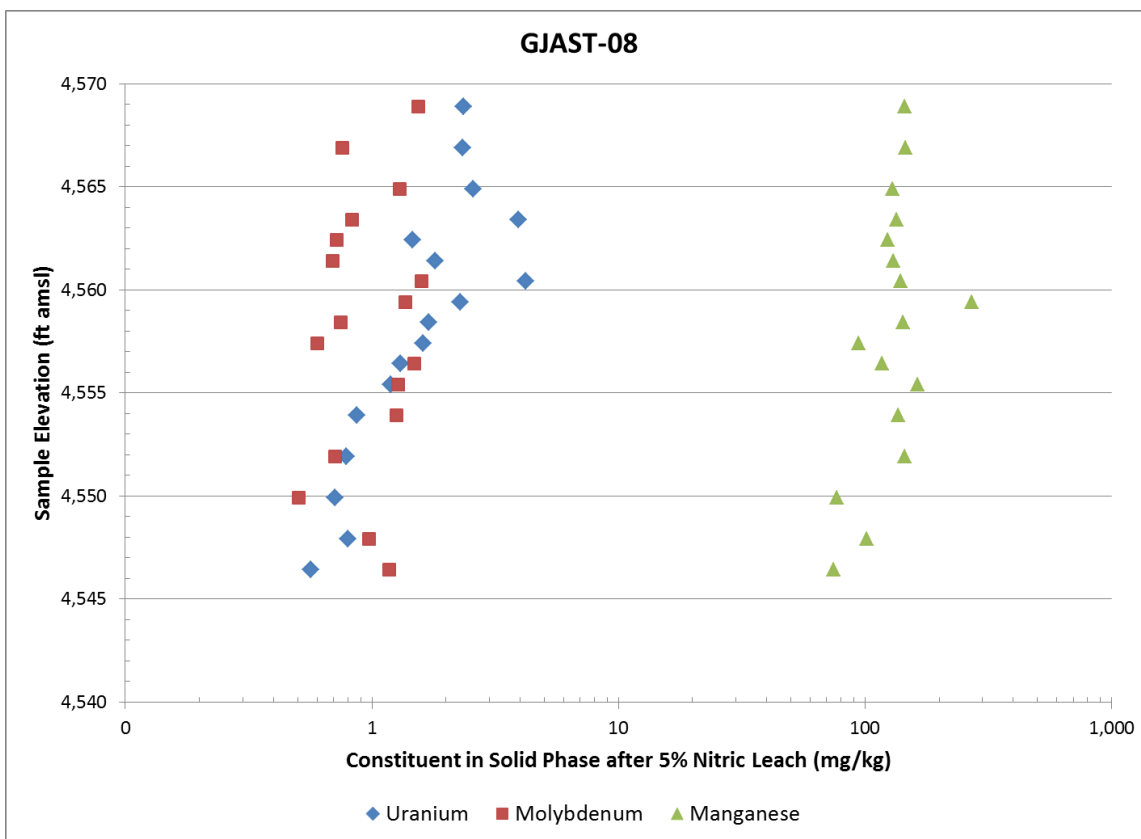
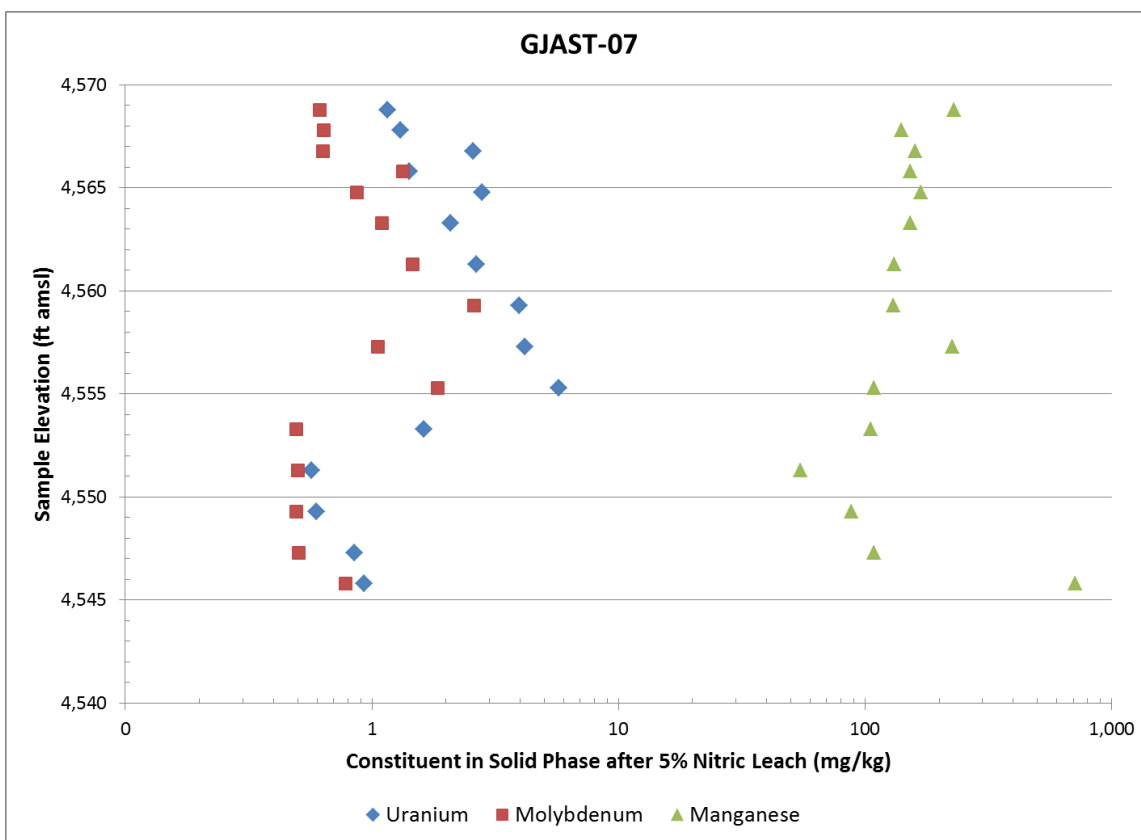
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Iron by Ammonium Oxalate Leach Compared with Uranium by
5% Nitric Acid Leach**

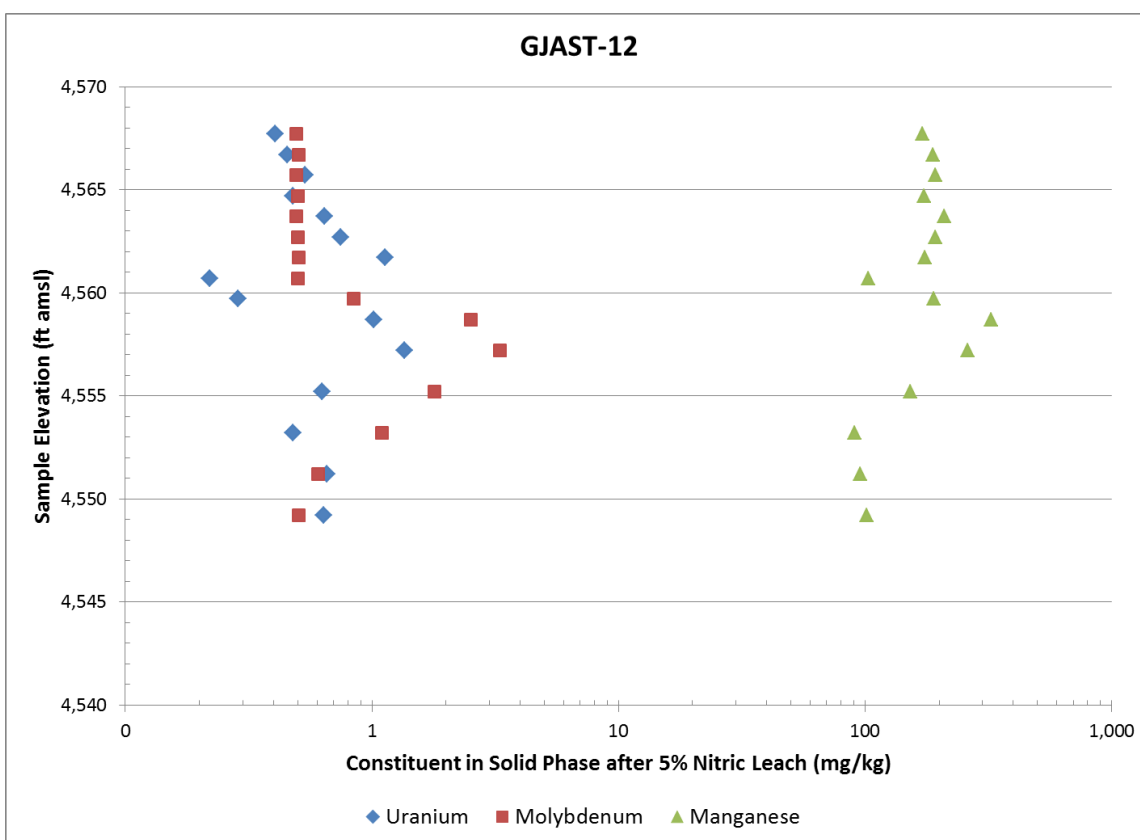
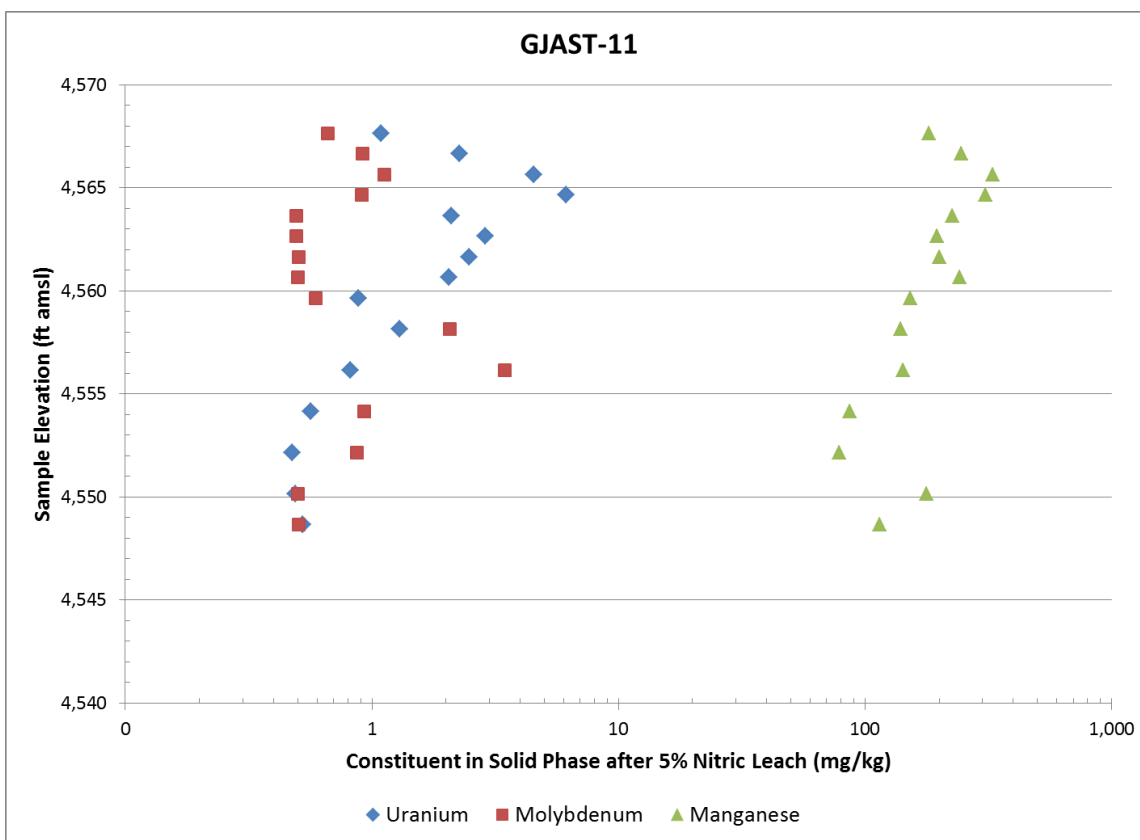
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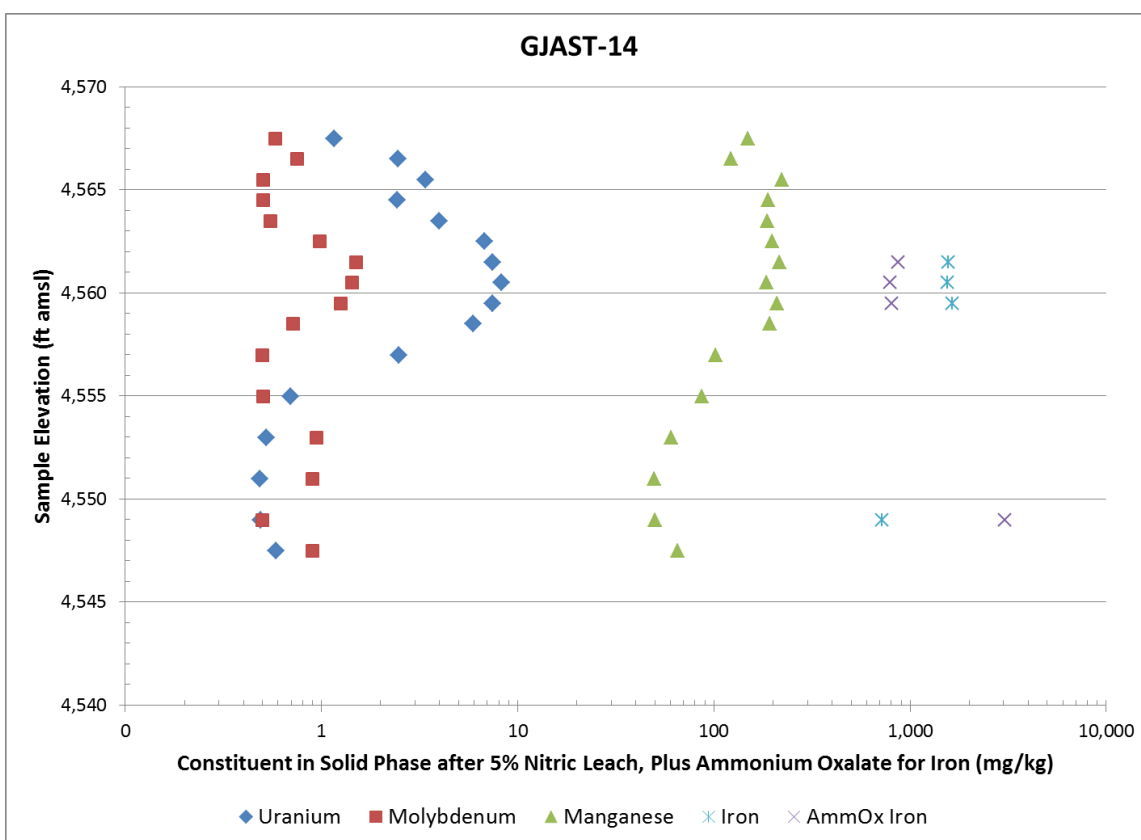
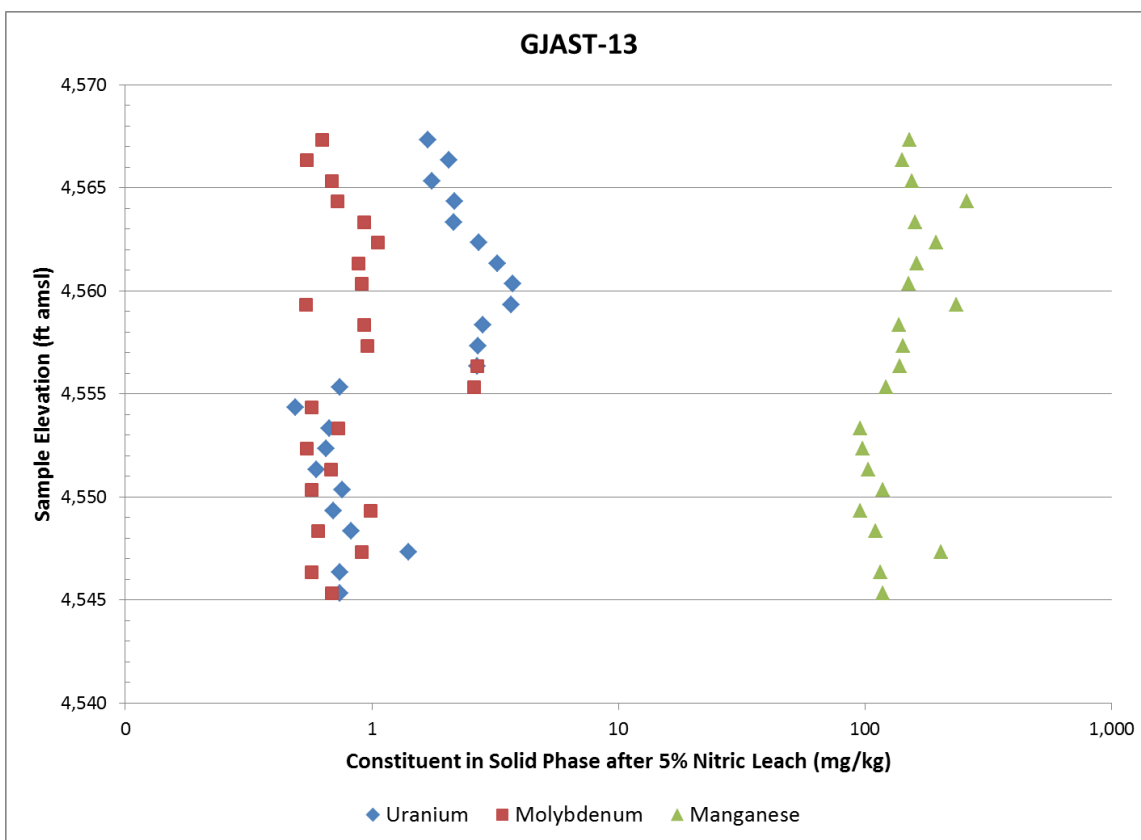


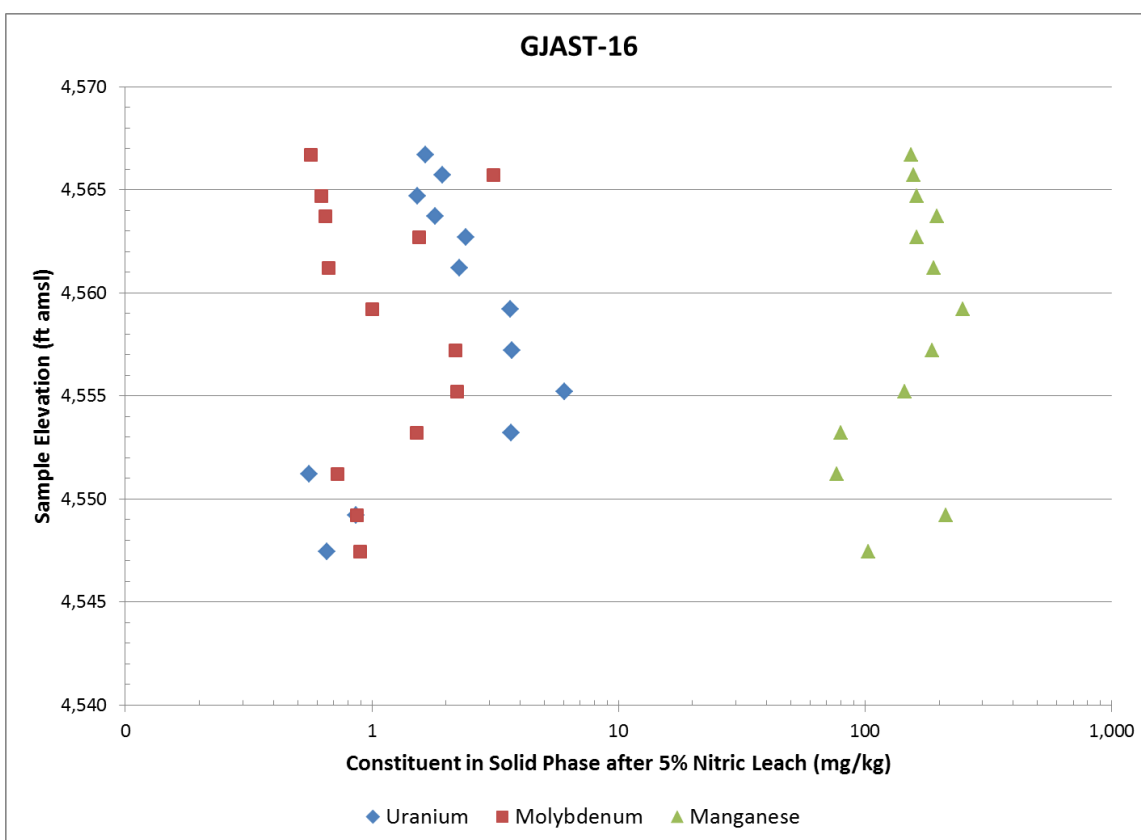
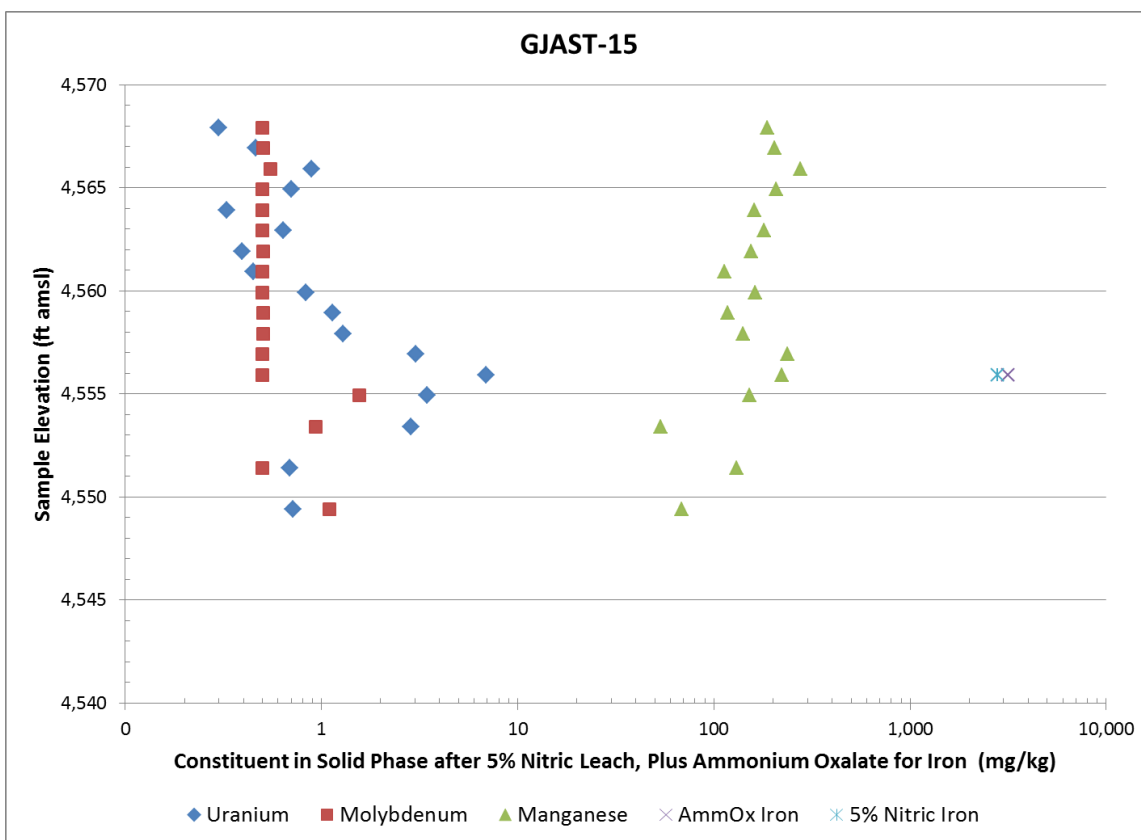


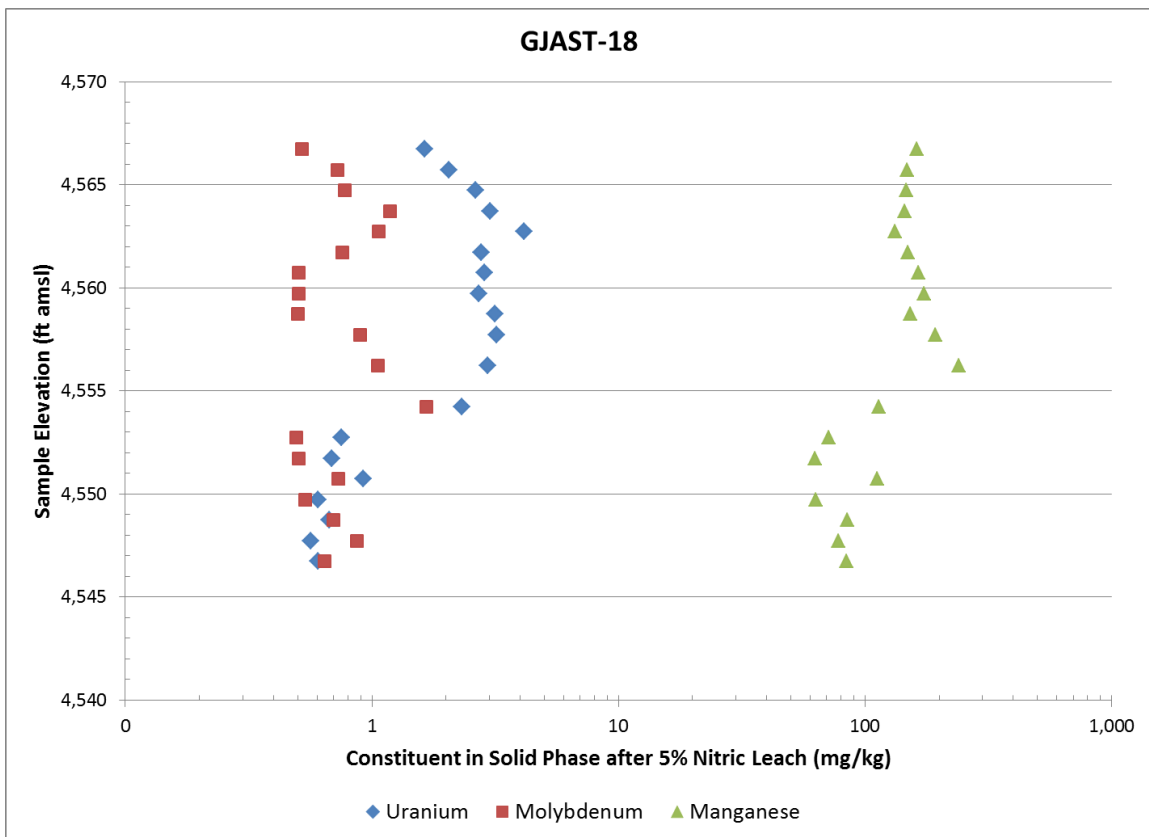
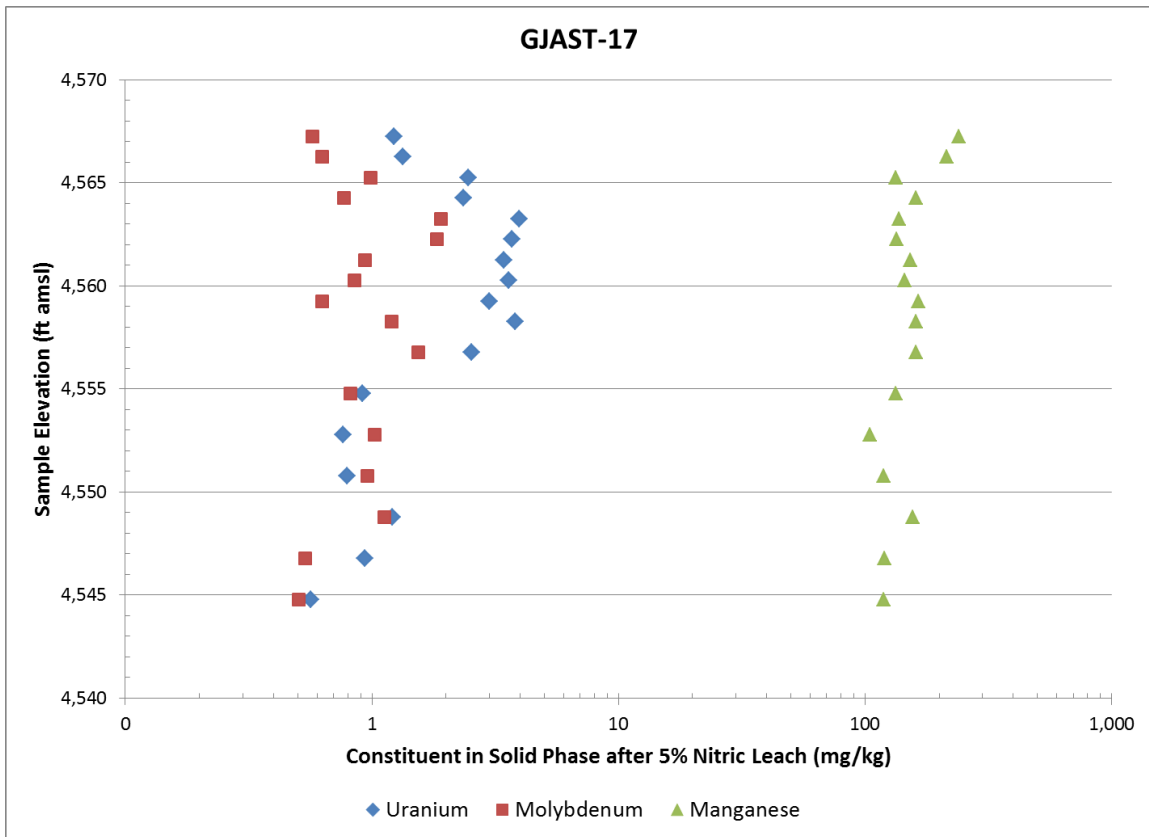


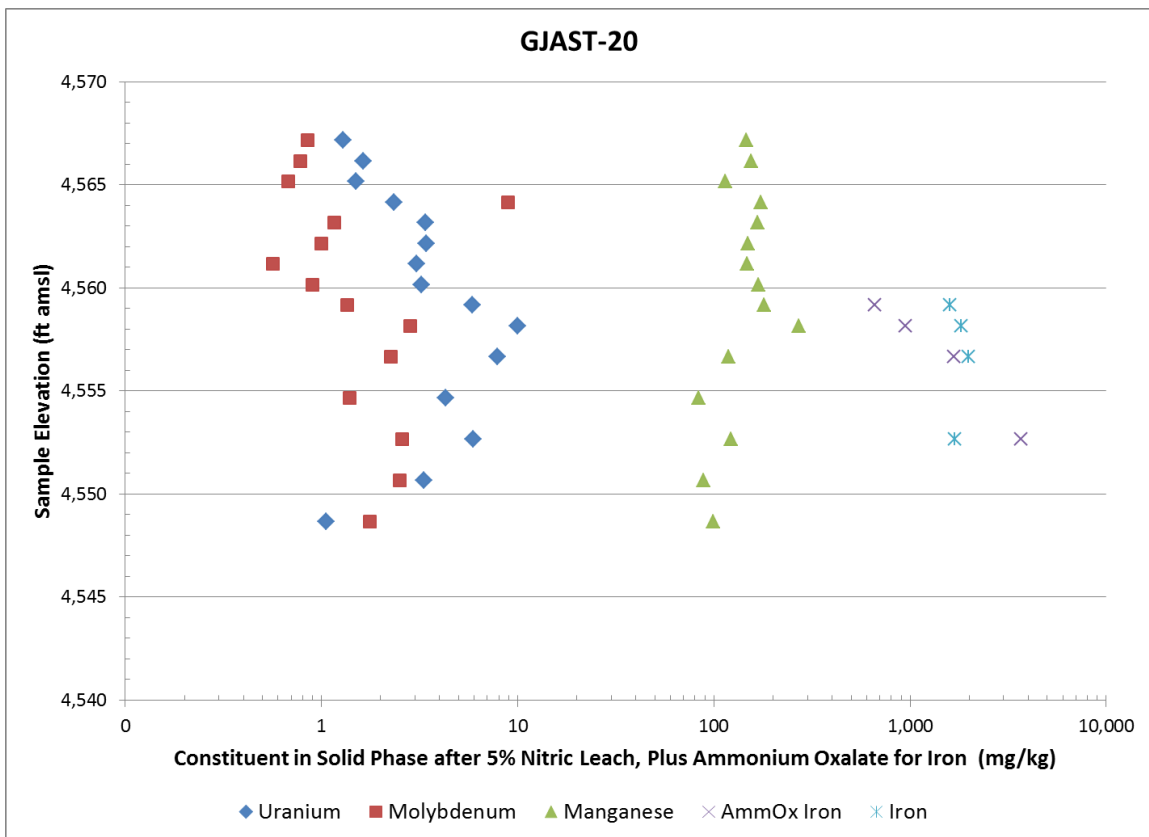
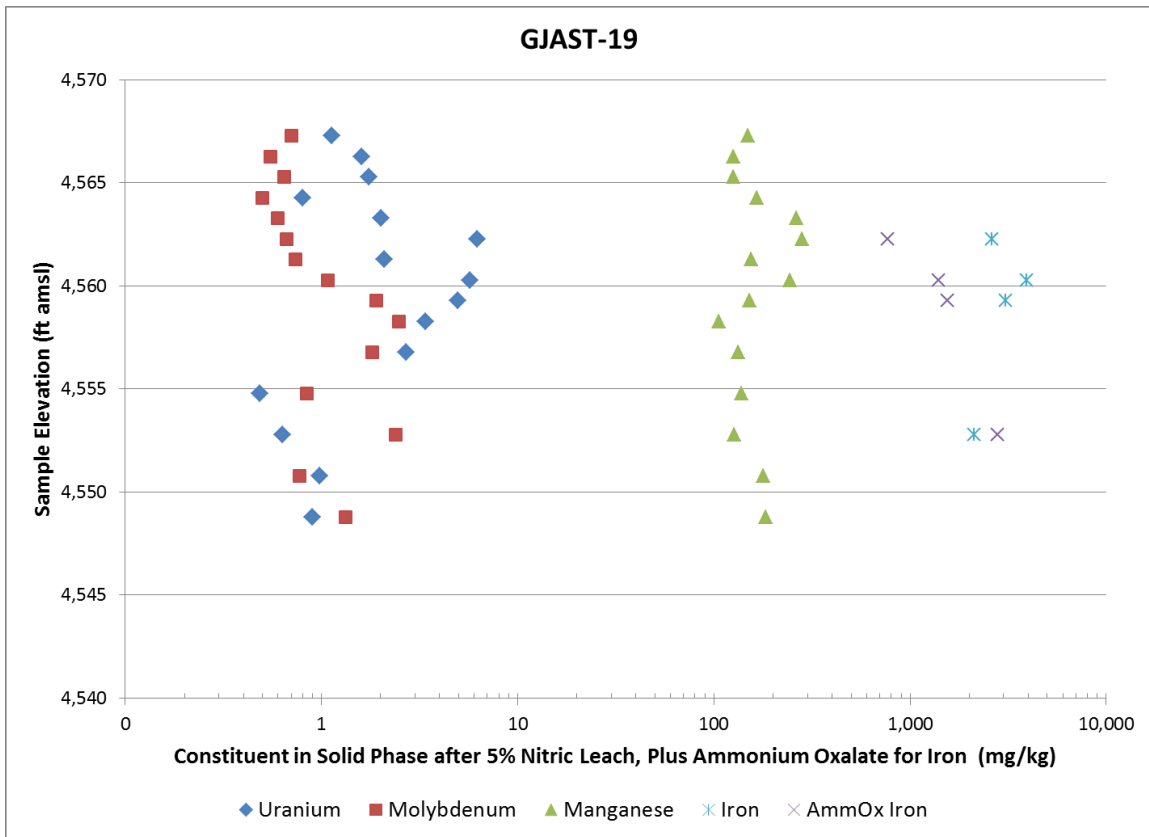


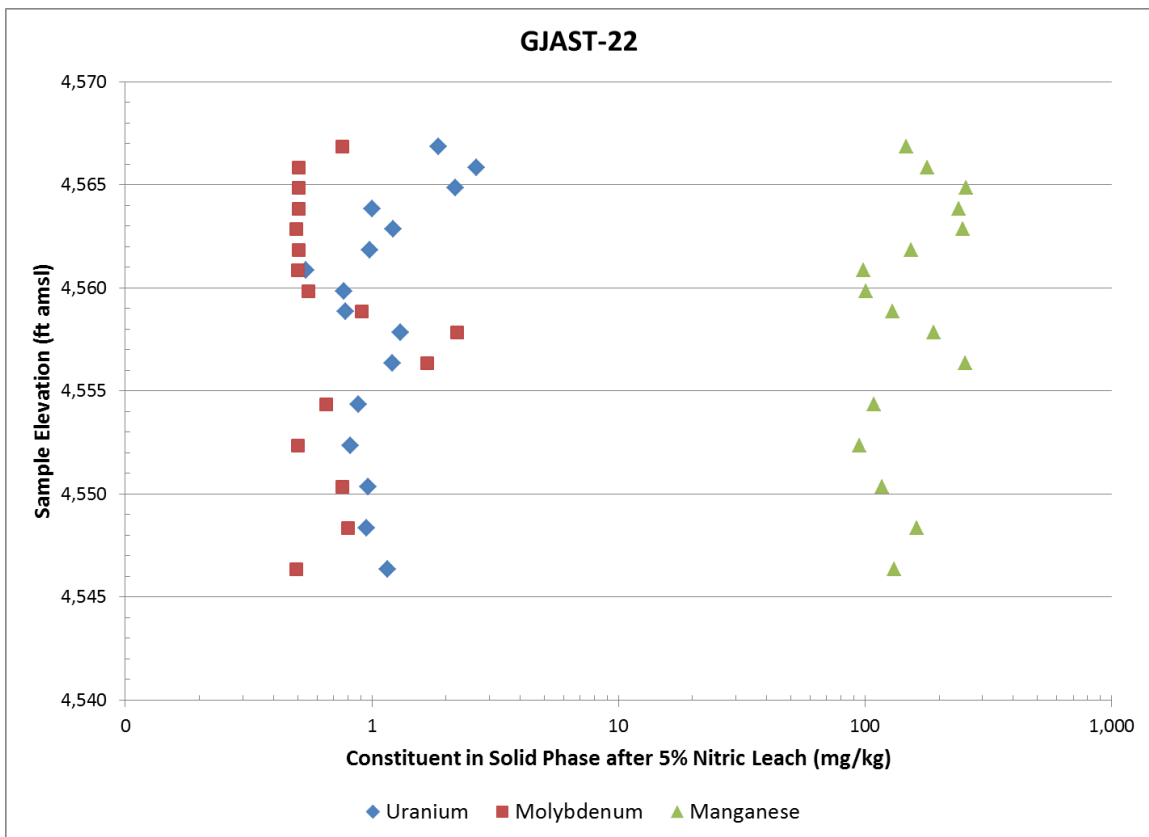
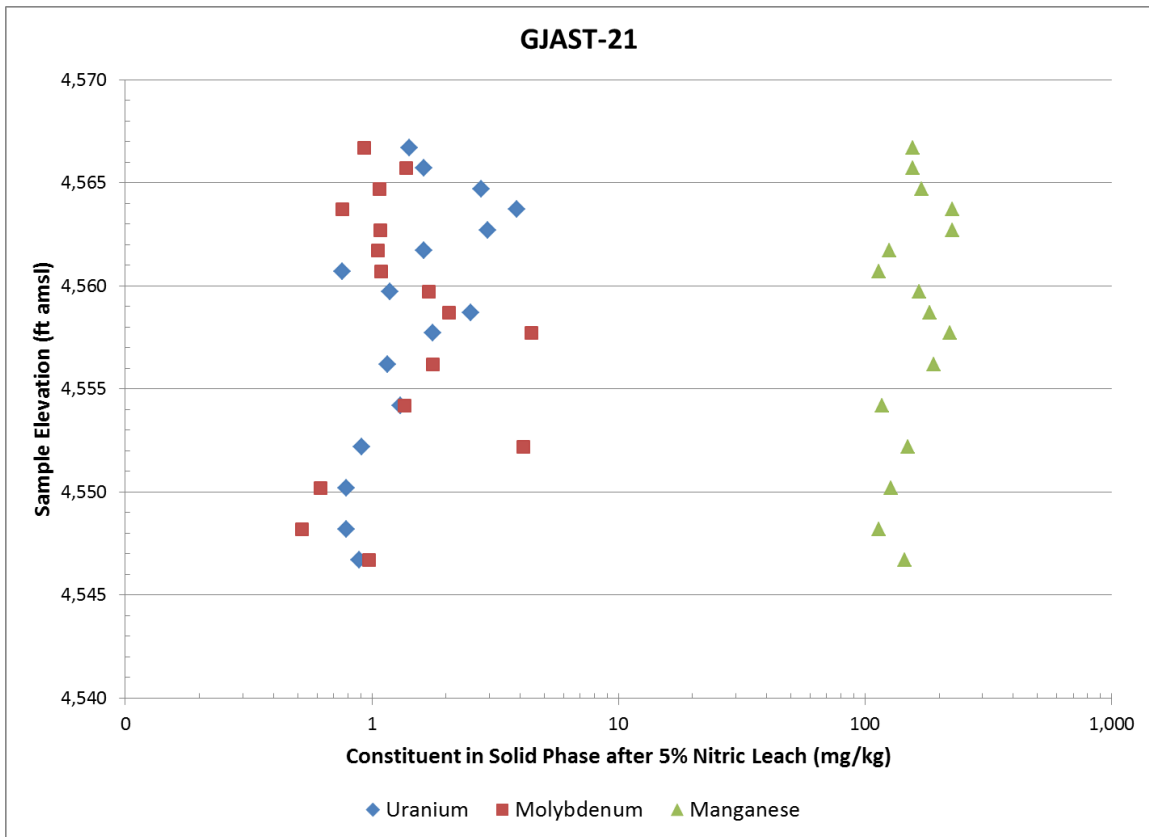












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Appendix D

Column Test Data

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Table D-1. Column Test Data for GJAST 14-7

Run Time (Minutes)	Cumulative Run Time (Hours)	Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	6/26/13 16:26	1	9	9	0.09	1.30	1.30	5295	Pale yellow
100	3.33	6/26/2013 18:06	2	9	18	0.09	1.30	2.61	6269	
100	5.00	6/26/2013 19:46	3	9	27	0.09	1.30	3.91	1896	
100	6.67	6/26/2013 21:26	4	9	36	0.09	1.30	5.22	945	
100	8.33	6/26/2013 23:06	5	9	45	0.09	1.30	6.52	639	
100	10.00	6/27/2013 0:46	6	9	54	0.09	1.30	7.83	494	
100	11.67	6/27/2013 2:26	7	9.5	63.5	0.10	1.38	9.20	387	Fraction collector malfunction. Seven minutes of tube 10 went into tube 7.
100	13.33	6/27/2013 4:06	8	9	72.5	0.09	1.30	10.51	288	
100	15.00	6/27/2013 5:46	9	9	81.5	0.09	1.30	11.81	288	Fraction collector malfunction. Total volume of tube 9 went into tube 8.
100	16.67	6/27/2013 7:26	10	8	89.5	0.08	1.16	12.97	232	Fraction collector malfunction. Seven minutes of tube 10 went into tube 7.
100	18.33	6/27/2013 9:06	11	8.5	98	0.09	1.23	14.20	206	
100	20.00	6/27/2013 10:46	12	8.5	106.5	0.09	1.23	15.43	197	
100	21.67	6/27/2013 12:26	13	8	114.5	0.08	1.16	16.59	189	
100	23.33	6/27/2013 14:06	14	8	122.5	0.08	1.16	17.75	157.5	
100	25.00	6/27/2013 15:46	15	8	130.5	0.08	1.16	18.91	135.4	
100	26.67	6/27/2013 17:26	16	8	138.5	0.08	1.16	20.07	130.1	
100	28.33	6/27/2013 19:06	17	8	146.5	0.08	1.16	21.23	134	
100	30.00	6/27/2013 20:46	18	8	154.5	0.08	1.16	22.39	124.3	Pump and fraction collector off @ 22:26 6/27
1535	55.58	6/28/2013 22:21	19	8	162.5	0.08	1.16	23.55	218.5	Pump and fraction collector on @ 22:21 6/28
100	57.25	6/29/2013 0:01	20	8.5	171	0.09	1.23	24.78	192.1	
100	58.92	6/29/2013 1:41	21	8	179	0.08	1.16	25.94	190.3	
100	60.58	6/29/2013 3:21	22	8	187	0.08	1.16	27.10	157.7	
100	62.25	6/29/2013 5:01	23	8	195	0.08	1.16	28.26	123.4	
100	63.92	6/29/2013 6:41	24	8	203	0.08	1.16	29.42	93.3	
100	65.58	6/29/2013 8:21	25	8	211	0.08	1.16	30.58	76.5	
100	67.25	6/29/2013 10:01	26	8	219	0.08	1.16	31.74	66.7	
100	68.92	6/29/2013 11:41	27	8	227	0.08	1.16	32.90	60.1	
100	70.58	6/29/2013 13:21	28	8	235	0.08	1.16	34.06	58.6	
100	72.25	6/29/2013 15:01	29	8	243	0.08	1.16	35.22	50	
100	73.92	6/29/2013 16:41	30	8	251	0.08	1.16	36.38	49.9	
100	75.58	6/29/2013 18:21	31	8	259	0.08	1.16	37.54	47.6	
100	77.25	6/29/2013 20:01	32	8	267	0.08	1.16	38.70	41.9	
100	78.92	6/29/2013 21:41	33	8	275	0.08	1.16	39.86	40.5	
100	80.58	6/29/2013 23:21	34	8	283	0.08	1.16	41.01	38.1	
100	82.25	6/30/2013 1:01	35	8	291	0.08	1.16	42.17	34.6	
100	83.92	6/30/2013 2:41	36	8	299	0.08	1.16	43.33	30.5	
100	85.58	6/30/2013 4:21	37	8	307	0.08	1.16	44.49	29.3	
100	87.25	6/30/2013 6:01	38	8	315	0.08	1.16	45.65	29.3	
100	88.92	6/30/2013 7:41	39	8	323	0.08	1.16	46.81	29.5	

Table D-1. Column Test Data for GJAST 14-7 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	90.58	6/30/2013 9:21	40	8	331	0.08	1.16	47.97	28.1	Pump and fraction collector off @ 11:01 6/30
5860	188.25	7/4/2013 11:01	41	8	339	0.08	1.16	49.13	107.2	Pump and fraction collector on @ 11:01 7/4
100	189.92	7/4/2013 12:41	42	8	347	0.08	1.16	50.29	124.3	
100	191.58	7/4/2013 14:21	43	8	355	0.08	1.16	51.45	114.8	
100	193.25	7/4/2013 16:01	44	8	363	0.08	1.16	52.61	101.2	
100	194.92	7/4/2013 17:41	45	8	371	0.08	1.16	53.77	81.3	
100	196.58	7/4/2013 19:21	46	8	379	0.08	1.16	54.93	61	
100	198.25	7/4/2013 21:01	47	8	387	0.08	1.16	56.09	45.9	
100	199.92	7/4/2013 22:41	48	8	395	0.08	1.16	57.25	38.6	
100	201.58	7/5/2013 0:21	49	8	403	0.08	1.16	58.41	31.5	
100	203.25	7/5/2013 2:01	50	8	411	0.08	1.16	59.57	27.5	
100	204.92	7/5/2013 3:41	51	8	419	0.08	1.16	60.72	24.1	
100	206.58	7/5/2013 5:21	52	8	427	0.08	1.16	61.88	21.2	
100	208.25	7/5/2013 7:01	53	6	433	0.06	0.87	62.75	19.5	
100	209.92	7/5/2013 8:41	54	5.5	438.5	0.06	0.80	63.55	18.7	
100	211.58	7/5/2013 10:21	55	5	443.5	0.05	0.72	64.28	19	
100	213.25	7/5/2013 12:01	56	3	446.5	0.03	0.43	64.71	19.4	
100	214.92	7/5/2013 13:41	57	0.5	447	0.01	0.07	64.78	24.7	
100	216.58	7/5/2013 15:21	58	0.5	447.5	0.01	0.07	64.86	23.8	
100	218.25	7/5/2013 17:01	59	0.5	448	0.01	0.07	64.93	25.2	
100	219.92	7/5/2013 18:41	60	1	449	0.01	0.14	65.07	25.4	
100	221.58	7/5/2013 20:21	61	1.5	450.5	0.02	0.22	65.29	27.9	
100	223.25	7/5/2013 22:01	62	1.5	452	0.02	0.22	65.51	27.3	
100	224.92	7/5/2013 23:41	63	1.5	453.5	0.02	0.22	65.72	27.5	
100	226.58	7/6/2013 1:21	64	1.5	455	0.02	0.22	65.94	29.2	
100	228.25	7/6/2013 3:01	65	1.5	456.5	0.02	0.22	66.16	28.1	
100	229.92	7/6/2013 4:41	66	2	458.5	0.02	0.29	66.45	27.5	
100	231.58	7/6/2013 6:21	67	2	460.5	0.02	0.29	66.74	24.8	
100	233.25	7/6/2013 8:01	68	2	462.5	0.02	0.29	67.03	24.8	60 min of collect to tray, no tube, then bottom frit replaced and tubing cleared
100	234.92	7/6/2013 9:41	69	4	466.5	0.04	0.58	67.61	23.8	Gap developed at bottom of soil column
100	236.58	7/6/2013 11:21	70	3	469.5	0.03	0.43	68.04	24.9	
100	238.25	7/6/2013 13:01	71	3.5	473	0.04	0.51	68.55	25.2	
100	239.92	7/6/2013 14:41	72	4	477	0.04	0.58	69.13	25.2	
100	241.58	7/6/2013 16:21	73	4	481	0.04	0.58	69.71	23.8	
100	243.25	7/6/2013 18:01	74	4	485	0.04	0.58	70.29	23	
100	244.92	7/6/2013 19:41	75	4	489	0.04	0.58	70.87	23.5	
100	246.58	7/6/2013 21:21	76	4	493	0.04	0.58	71.45	22.8	
100	248.25	7/6/2013 23:01	77	4	497	0.04	0.58	72.03	22.2	

Table D-1. Column Test Data for GJAST 14-7 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	249.92	7/7/2013 0:41	78	4	501	0.04	0.58	72.61	21.1	
100	251.58	7/7/2013 2:21	79	4	505	0.04	0.58	73.19	20.8	
100	253.25	7/7/2013 4:01	80	3.5	508.5	0.04	0.51	73.70	19.2	80,81,82 in tube 80
100	254.92	7/7/2013 5:41	81	3.5	512	0.04	0.51	74.20	19.2	
100	256.58	7/7/2013 7:21	82	3	515	0.03	0.43	74.64	19.2	Discontinued flow to column

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-2. Column Test Data for GJAST 14-8

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	5/14/2013 11:07	1	9	9	0.09	1.25	1.25	5206	Pale yellow color
100	3.33	5/14/2013 12:47	2	9	18	0.09	1.25	2.50	6994	
100	5.00	5/14/2013 14:27	3	9	27	0.09	1.25	3.75	2360	
100	6.67	5/14/2013 16:07	4	9	36	0.09	1.25	5.00	1052	
100	8.33	5/14/2013 17:47	5	9	45	0.09	1.25	6.25	759.7	
100	10.00	5/14/2013 19:27	6	9	54	0.09	1.25	7.50	552.9	
100	11.67	5/14/2013 21:07	7	9	63	0.09	1.25	8.75	441.6	
100	13.33	5/14/2013 22:47	8	9	72	0.09	1.25	10.00	342.9	
100	15.00	5/15/2013 0:27	9	9	81	0.09	1.25	11.25	279.9	
100	16.67	5/15/2013 2:07	10	9	90	0.09	1.25	12.50	236.5	
100	18.33	5/15/2013 3:47	11	9	99	0.09	1.25	13.75	198.3	
100	20.00	5/15/2013 5:27	12	8.5	107.5	0.09	1.18	14.93	185.3	
100	21.67	5/15/2013 7:07	13	9	116.5	0.09	1.25	16.18	155.9	
100	23.33	5/15/2013 8:47	14	9	125.5	0.09	1.25	17.43	134.8	
100	25.00	5/15/2013 10:27	15	9	134.5	0.09	1.25	18.68	123.9	
100	26.67	5/15/2013 12:07	16	9	143.5	0.09	1.25	19.93	116.9	
100	28.33	5/15/2013 13:47	17	9	152.5	0.09	1.25	21.18	117.1	
100	30.00	5/15/2013 15:27	18	9	161.5	0.09	1.25	22.43	112.6	
100	31.67	5/15/2013 17:07	19	9	170.5	0.09	1.25	23.68	108.3	pump and fraction collector off @ 18:47
1542	57.37	5/16/2013 18:49	20	9	179.5	0.09	1.25	24.93	210.5	pump on @ 18:45, fraction collector on @ 18:49
100	59.03	5/16/2013 20:29	21	9	188.5	0.09	1.25	26.18	190.1	
100	60.70	5/16/2013 22:09	22	9	197.5	0.09	1.25	27.43	164.5	
100	62.37	5/16/2013 23:49	23	9	206.5	0.09	1.25	28.68	133.9	
100	64.03	5/17/2013 1:29	24	9	215.5	0.09	1.25	29.93	103.8	
100	65.70	5/17/2013 3:09	25	9	224.5	0.09	1.25	31.18	80.2	
100	67.37	5/17/2013 4:49	26	9	233.5	0.09	1.25	32.43	67	
100	69.03	5/17/2013 6:29	27	9	242.5	0.09	1.25	33.68	55.5	
100	70.70	5/17/2013 8:09	28	9	251.5	0.09	1.25	34.93	48.7	
100	72.37	5/17/2013 9:49	29	9	260.5	0.09	1.25	36.18	44.1	
100	74.03	5/17/2013 11:29	30	9	269.5	0.09	1.25	37.43	43.9	
100	75.70	5/17/2013 13:09	31	9	278.5	0.09	1.25	38.68	41.8	
100	77.37	5/17/2013 14:49	32	9	287.5	0.09	1.25	39.93	40.2	
100	79.03	5/17/2013 16:29	33	8.5	296	0.09	1.18	41.11	39.5	
100	80.70	5/17/2013 18:09	34	9	305	0.09	1.25	42.36	37.4	
100	82.37	5/17/2013 19:49	35	9	314	0.09	1.25	43.61	35.1	
100	84.03	5/17/2013 21:29	36	9	323	0.09	1.25	44.86	33.6	
100	85.70	5/17/2013 23:09	37	9	332	0.09	1.25	46.11	33.3	
100	87.37	5/18/2013 0:49	38	9	341	0.09	1.25	47.36	30.3	pump and fraction collector off @ 02:30 5/18
5861	185.05	5/22/2013 2:30	39	9	350	0.09	1.25	48.61	116.8	pump and fraction collector on @ 02:30 5/22
100	186.72	5/22/2013 4:10	40	9	359	0.09	1.25	49.86	108.6	
100	188.38	5/22/2013 5:50	41	9	368	0.09	1.25	51.11	101.5	

Table D-2. Column Test Data for GJAST 14-8 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	190.05	5/22/2013 7:30	42	9	377	0.09	1.25	52.36	90.5	
100	191.72	5/22/2013 9:10	43	9	386	0.09	1.25	53.61	76.7	
100	193.38	5/22/2013 10:50	44	9	395	0.09	1.25	54.86	60.2	clear tubing to prevent blockage
100	195.05	5/22/2013 12:30	45	8	403	0.08	1.11	55.97	49.5	
100	196.72	5/22/2013 14:10	46	8.5	411.5	0.09	1.18	57.15	41.9	
100	198.38	5/22/2013 15:50	47	8.5	420	0.09	1.18	58.33	38.2	
100	200.05	5/22/2013 17:30	48	9	429	0.09	1.25	59.58	34.5	
100	201.72	5/22/2013 19:10	49	9	438	0.09	1.25	60.83	29.6	
100	203.38	5/22/2013 20:50	50	9	447	0.09	1.25	62.08	29.1	
100	205.05	5/22/2013 22:30	51	9	456	0.09	1.25	63.33	25.6	
100	206.72	5/23/2013 0:10	52	9	465	0.09	1.25	64.58	22.2	
100	208.38	5/23/2013 1:50	53	9	474	0.09	1.25	65.83	20.8	
100	210.05	5/23/2013 3:30	54	9	483	0.09	1.25	67.08	19.3	
100	211.72	5/23/2013 5:10	55	9	492	0.09	1.25	68.33	18.1	
100	213.38	5/23/2013 6:50	56	9	501	0.09	1.25	69.58	17.1	
100	215.05	5/23/2013 8:30	57	9	510	0.09	1.25	70.83	16.4	
100	216.72	5/23/2013 10:10	58	9	519	0.09	1.25	72.08	15.6	
100	218.38	5/23/2013 11:50	59	9	528	0.09	1.25	73.33	15.5	
100	220.05	5/23/2013 13:30	60	9	537	0.09	1.25	74.58	17.3	
100	221.72	5/23/2013 15:10	61	9	546	0.09	1.25	75.83	16.9	
100	223.38	5/23/2013 16:50	62	9	555	0.09	1.25	77.08	13.9	
100	225.05	5/23/2013 18:30	63	9	564	0.09	1.25	78.33	14.9	
100	226.72	5/23/2013 20:10	64	9	573	0.09	1.25	79.58	13.2	
100	228.38	5/23/2013 21:50	65	9	582	0.09	1.25	80.83	14	
100	230.05	5/23/2013 23:30	66	9	591	0.09	1.25	82.08	14	
100	231.72	5/24/2013 1:10	67	9	600	0.09	1.25	83.33	13	
100	233.38	5/24/2013 2:50	68	9	609	0.09	1.25	84.58	15.2	
100	235.05	5/24/2013 4:30	69	9	618	0.09	1.25	85.83	12.3	
100	236.72	5/24/2013 6:10	70	9	627	0.09	1.25	87.08	13.9	
100	238.38	5/24/2013 7:50	71	9	636	0.09	1.25	88.33	14	
100	240.05	5/24/2013 9:30	72	9	645	0.09	1.25	89.58	12	Discontinued flow to column

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-3. Column Test Data for GJAST 14-9

Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
1.67	8/14/13 10:55	1	9	9	0.09	1.25	1.25	4547	Pale yellow color
3.33	8/14/2013 12:35	2	10	19	0.10	1.39	2.64	6299	Clear
5.00	8/14/2013 14:15	3	10	29	0.10	1.39	4.03	2078	
6.67	8/14/2013 15:55	4	9.5	38.5	0.10	1.32	5.35	1111	
8.33	8/14/2013 17:35	5	9.5	48	0.10	1.32	6.67	708.3	
10.00	8/14/2013 19:15	6	9.5	57.5	0.10	1.32	7.99	501.7	
11.67	8/14/2013 20:55	7	10	67.5	0.10	1.39	9.38	416.9	
13.33	8/14/2013 22:35	8	10	77.5	0.10	1.39	10.76	311.8	
15.00	8/15/2013 0:15	9	9.5	87	0.10	1.32	12.08	272.5	
16.67	8/15/2013 1:55	10	9.5	96.5	0.10	1.32	13.40	231.1	
18.33	8/15/2013 3:35	11	9.5	106	0.10	1.32	14.72	208.4	
20.00	8/15/2013 5:15	12	9.5	115.5	0.10	1.32	16.04	200.9	
21.67	8/15/2013 6:55	13	9.5	125	0.10	1.32	17.36	200.3	
23.33	8/15/2013 8:35	14	9.5	134.5	0.10	1.32	18.68	155.5	
25.00	8/15/2013 10:15	15	9.5	144	0.10	1.32	20.00	167	
26.67	8/15/2013 11:55	16	9.5	153.5	0.10	1.32	21.32	157.1	
28.33	8/15/2013 13:35	17	10	163.5	0.10	1.39	22.71	122.2	
30.00	8/15/2013 15:15	18	9.5	173	0.10	1.32	24.03	118.5	Pump and fraction collector off @ 16:55 8/15
55.67	8/16/2013 16:55	19	6	179	0.06	0.83	24.86	232	Pump and fraction collector on @ 16:55 8/16, air in outflow tubing from column
57.33	8/16/2013 18:35	20	9.5	188.5	0.10	1.32	26.18	206.3	
59.00	8/16/2013 20:15	21	9.5	198	0.10	1.32	27.50	172.7	
60.67	8/16/2013 21:55	22	9.5	207.5	0.10	1.32	28.82	137.5	
62.33	8/16/2013 23:35	23	10	217.5	0.10	1.39	30.21	116.1	
64.00	8/17/2013 1:15	24	10	227.5	0.10	1.39	31.60	98.5	
65.67	8/17/2013 2:55	25	9.5	237	0.10	1.32	32.92	83.9	
67.33	8/17/2013 4:35	26	9.5	246.5	0.10	1.32	34.24	71.3	
69.00	8/17/2013 6:15	27	9.5	256	0.10	1.32	35.56	63	
70.67	8/17/2013 7:55	28	9.5	265.5	0.10	1.32	36.88	58.4	
72.33	8/17/2013 9:35	29	9.5	275	0.10	1.32	38.19	52	
74.00	8/17/2013 11:15	30	9.5	284.5	0.10	1.32	39.51	48.9	
75.67	8/17/2013 12:55	31	9.5	294	0.10	1.32	40.83	47.5	
77.33	8/17/2013 14:35	32	9.5	303.5	0.10	1.32	42.15	46.2	
79.00	8/17/2013 16:15	33	9.5	313	0.10	1.32	43.47	45.6	
80.67	8/17/2013 17:55	34	10	323	0.10	1.39	44.86	44.1	
82.33	8/17/2013 19:35	35	9.5	332.5	0.10	1.32	46.18	43.4	
84.00	8/17/2013 21:15	36	9.5	342	0.10	1.32	47.50	41.7	Pump and fraction collector off @ 22:55 8/17
181.67	8/21/2013 22:55	37	7.5	349.5	0.08	1.04	48.54	137.4	Pump and fraction collector on @ 22:55 8/21, air in outflow tubing from column
183.33	8/22/2013 0:35	38	9.5	359	0.10	1.32	49.86	125.1	
185.00	8/22/2013 2:15	39	9.5	368.5	0.10	1.32	51.18	110.7	

Table D-3. Column Test Data for GJAST 14-9 (continued)

Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
186.67	8/22/2013 3:55	40	9.5	378	0.10	1.32	52.50	91.5	
188.33	8/22/2013 5:35	41	8	386	0.08	1.11	53.61	69.8	
190.00	8/22/2013 7:15	42	9	395	0.09	1.25	54.86	64.2	
191.67	8/22/2013 8:55	43	5	400	0.05	0.69	55.56	55.2	
193.33	8/22/2013 10:35	44	4	404	0.04	0.56	56.11	52.1	
195.00	8/22/2013 12:15	45	3	407	0.03	0.42	56.53	50.6	
196.67	8/22/2013 13:55	46	3	410	0.03	0.42	56.94	50	
198.33	8/22/2013 15:35	47	3	413	0.03	0.42	57.36	49.1	Stop column due to low flow

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-4. Column Test Data for GJAST 14-19

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	10/7/13 15:45	1	9.5	9.5	0.095	1.58	1.58	336.2	
100	3.33	10/7/2013 17:25	2	10	19.5	0.10	1.67	3.25	83.3	
100	5.00	10/7/2013 19:05	3	10	29.5	0.10	1.67	4.92	43.7	
100	6.67	10/7/2013 20:45	4	10	39.5	0.10	1.67	6.58	30.1	
100	8.33	10/7/2013 22:25	5	9.5	49	0.10	1.58	8.17	24.2	
100	10.00	10/8/2013 0:05	6	10	59	0.10	1.67	9.83	20.6	
100	11.67	10/8/2013 1:45	7	10	69	0.10	1.67	11.50	15.4	
100	13.33	10/8/2013 3:25	8	10	79	0.10	1.67	13.17	12.9	
100	15.00	10/8/2013 5:05	9	10	89	0.10	1.67	14.83	11.6	
100	16.67	10/8/2013 6:45	10	8	97	0.08	1.33	16.17	10.3	
100	18.33	10/8/2013 8:25	11	5.5	102.5	0.06	0.92	17.08	11.4	
100	20.00	10/8/2013 10:05	12	4	106.5	0.04	0.67	17.75	12.6	
100	21.67	10/8/2013 11:45	13	3.5	110	0.04	0.58	18.33	14	
100	23.33	10/8/2013 13:25	14	3	113	0.03	0.50	18.83	15.3	
100	25.00	10/8/2013 15:05	15	3	116	0.03	0.50	19.33	17.3	Short 1 ml on volume due to intentional tubing check
100	26.67	10/8/2013 16:45	16	3	119	0.03	0.50	19.83	19.7	
100	28.33	10/8/2013 18:25	17	2	121	0.02	0.33	20.17	21.8	
100	30.00	10/8/2013 20:05	18	2	123	0.02	0.33	20.50	21.8	Discontinued pumping

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-5. Column Test Data for GJAST 15-13

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	6/26/13 17:45	1	4	4	0.04	1.18	1.18	1092.3	Pale yellow
100	3.33	6/26/2013 19:25	2	4.5	8.5	0.05	1.32	2.50	1507.3	Pale yellow
100	5.00	6/26/2013 21:05	3	5	13.5	0.05	1.47	3.97	1594.3	Pale yellow
100	6.67	6/26/2013 22:45	4	5.5	19	0.06	1.62	5.59	1583	Pale yellow
100	8.33	6/27/2013 0:25	5	6	25	0.06	1.76	7.35	1476	
100	10.00	6/27/2013 2:05	6	5.5	30.5	0.06	1.62	8.97	1359.3	
100	11.67	6/27/2013 3:45	7	6	36.5	0.06	1.76	10.74	1128.3	
100	13.33	6/27/2013 5:25	8	5.5	42	0.06	1.62	12.35	963.3	
100	15.00	6/27/2013 7:05	9	6	48	0.06	1.76	14.12	804.7	
100	16.67	6/27/2013 8:45	10	6	54	0.06	1.76	15.88	688	
100	18.33	6/27/2013 10:25	11	5.5	59.5	0.06	1.62	17.50	568.1	
100	20.00	6/27/2013 12:05	12	5.5	65	0.06	1.62	19.12	527	
100	21.67	6/27/2013 13:45	13	5	70	0.05	1.47	20.59	448.9	
100	23.33	6/27/2013 15:25	14	5	75	0.05	1.47	22.06	417.3	
100	25.00	6/27/2013 17:05	15	5	80	0.05	1.47	23.53	374	
100	26.67	6/27/2013 18:45	16	4.5	84.5	0.05	1.32	24.85	346.1	
100	28.33	6/27/2013 20:25	17	4	88.5	0.04	1.18	26.03	323.5	
100	30.00	6/27/2013 22:05	18	4.5	93	0.05	1.32	27.35	315.1	
100	31.67	6/27/2013 23:45	19	4.5	97.5	0.05	1.32	28.68	297.7	
100	33.33	6/28/2013 1:25	20	4	101.5	0.04	1.18	29.85	276.2	
100	35.00	6/28/2013 3:05	21	4	105.5	0.04	1.18	31.03	251.1	
100	36.67	6/28/2013 4:45	22	4	109.5	0.04	1.18	32.21	229.1	
100	38.33	6/28/2013 6:25	23	4	113.5	0.04	1.18	33.38	202.7	
100	40.00	6/28/2013 8:05	24	4	117.5	0.04	1.18	34.56	202.5	
100	41.67	6/28/2013 9:45	25	3.5	121	0.04	1.03	35.59	192.1	
100	43.33	6/28/2013 11:25	26	3.5	124.5	0.04	1.03	36.62	192.1	
100	45.00	6/28/2013 13:05	27	3.5	128	0.04	1.03	37.65	187.9	Pump and fraction collector off @ 14:45 6/28
1557	70.95	6/29/2013 15:02	28	3	131	0.03	0.88	38.53	184.3	Pump and fraction collector on @ 15:02 6/29
100	72.62	6/29/2013 16:42	29	3	134	0.03	0.88	39.41	171.1	
100	74.28	6/29/2013 18:22	30	2.5	136.5	0.03	0.74	40.15	190.1	
100	75.95	6/29/2013 20:02	31	3	139.5	0.03	0.88	41.03	183	
100	77.62	6/29/2013 21:42	32	3	142.5	0.03	0.88	41.91	156.3	
100	79.28	6/29/2013 23:22	33	3	145.5	0.03	0.88	42.79	144	
100	80.95	6/30/2013 1:02	34	3	148.5	0.03	0.88	43.68	138.6	
100	82.62	6/30/2013 2:42	35	3	151.5	0.03	0.88	44.56	140.7	
100	84.28	6/30/2013 4:22	36	2.5	154	0.03	0.74	45.29	145.9	
100	85.95	6/30/2013 6:02	37	2.5	156.5	0.03	0.74	46.03	126.1	
100	87.62	6/30/2013 7:42	38	2.5	159	0.03	0.74	46.76	127.4	
100	89.28	6/30/2013 9:22	39	2.5	161.5	0.03	0.74	47.50	139.3	

Table D-5. Column Test Data for GJAST 15-13 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	90.95	6/30/2013 11:02	40	2.5	164	0.03	0.74	48.24	129.9	Pump and fraction collector off @ 12:42 6/30
5860	188.62	7/4/2013 12:42	41	2.5	166.5	0.03	0.74	48.97	179.1	Pump and fraction collector on @ 12:42 7/4
100	190.28	7/4/2013 14:22	42	2	168.5	0.02	0.59	49.56	198.1	
100	191.95	7/4/2013 16:02	43	2	170.5	0.02	0.59	50.15	217.2	
100	193.62	7/4/2013 17:42	44	1.5	172	0.02	0.44	50.59	197.7	
100	195.28	7/4/2013 19:22	45	1.5	173.5	0.02	0.44	51.03	187.8	
100	196.95	7/4/2013 21:02	46	1.5	175	0.02	0.44	51.47	186.4	
100	198.62	7/4/2013 22:42	47	1	176	0.01	0.29	51.76	175.1	
100	200.28	7/5/2013 0:22	48	1	177	0.01	0.29	52.06	158.5	
100	201.95	7/5/2013 2:02	49	1	178	0.01	0.29	52.35	153.2	
100	203.62	7/5/2013 3:42	50	1	179	0.01	0.29	52.65	161	
100	205.28	7/5/2013 5:22	51	1	180	0.01	0.29	52.94	155.7	
100	206.95	7/5/2013 7:02	52	1	181	0.01	0.29	53.24	149.2	
100	208.62	7/5/2013 8:42	53	1	182	0.01	0.29	53.53	134.6	
100	210.28	7/5/2013 10:22	54	1	183	0.01	0.29	53.82	122.2	
100	211.95	7/5/2013 12:02	55	1	184	0.01	0.29	54.12	113.9	
100	213.62	7/5/2013 13:42	56	4	188	0.04	1.18	55.29	116.7	
100	215.28	7/5/2013 15:22	57	0.5	188.5	0.01	0.15	55.44	120.3	
100	216.95	7/5/2013 17:02	58	0.5	189	0.01	0.15	55.59	104.1	
100	218.62	7/5/2013 18:42	59	0.1	189.1	0.00	0.03	55.62		Insufficient sample for U analysis
100	220.28	7/5/2013 20:22	60	0.1	189.2	0.00	0.03	55.65		Insufficient sample for U analysis
100	221.95	7/5/2013 22:02	61	0.1	189.3	0.00	0.03	55.68		Insufficient sample for U analysis
100	223.62	7/5/2013 23:42	62	0.1	189.4	0.00	0.03	55.71		Insufficient sample for U analysis
100	225.28	7/6/2013 1:22	63	0.1	189.5	0.00	0.03	55.74		Insufficient sample for U analysis
100	226.95	7/6/2013 3:02	64	0.1	189.6	0.00	0.03	55.76		Insufficient sample for U analysis
100	228.62	7/6/2013 4:42	65	0.2	189.8	0.00	0.06	55.82		Insufficient sample for U analysis
100	230.28	7/6/2013 6:22	66	0.1	189.9	0.00	0.03	55.85		Insufficient sample for U analysis
100	231.95	7/6/2013 8:02	67	0.1	190	0.00	0.03	55.88		Insufficient sample for U analysis
100	233.62	7/6/2013 9:42	68	1.5	191.5	0.02	0.44	56.32	104.9	60 min of collect to tray, no tube, then both frits replaced, vol of outflow into 6-68
100	235.28	7/6/2013 11:22	69	2	193.5	0.02	0.59	56.91	104.7	
100	236.95	7/6/2013 13:02	70	2	195.5	0.02	0.59	57.50	93.1	
100	238.62	7/6/2013 14:42	71	2	197.5	0.02	0.59	58.09	84.7	
100	240.28	7/6/2013 16:22	72	2	199.5	0.02	0.59	58.68	77.5	
100	241.95	7/6/2013 18:02	73	1.5	201	0.02	0.44	59.12	71.5	
100	243.62	7/6/2013 19:42	74	1	202	0.01	0.29	59.41	69.5	
100	245.28	7/6/2013 21:22	75	1	203	0.01	0.29	59.71	75.4	
100	246.95	7/6/2013 23:02	76	1	204	0.01	0.29	60.00	86.7	
100	248.62	7/7/2013 0:42	77	1	205	0.01	0.29	60.29	86.9	
100	250.28	7/7/2013 2:22	78	1	206	0.01	0.29	60.59	82.7	
100	251.95	7/7/2013 4:02	79	1	207	0.01	0.29	60.88	80.6	

Table D-5. Column Test Data for GJAST 15-13 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	253.62	7/7/2013 5:42	80	1	208	0.01	0.29	61.18	78.9	
100	255.28	7/7/2013 7:22	81	1	209	0.01	0.29	61.47	77.6	
100	256.95	7/7/2013 9:02	82	1	210	0.01	0.29	61.76	93.7	
100	258.62	7/7/2013 10:42	83	0.5	210.5	0.01	0.15	61.91	90.9	
100	260.28	7/7/2013 12:22	84	0.5	211	0.01	0.15	62.06	90.5	
100	261.95	7/7/2013 14:02	85	0.5	211.5	0.01	0.15	62.21	91	
100	263.62	7/7/2013 15:42	86	0.5	212	0.01	0.15	62.35	87.4	
100	265.28	7/7/2013 17:22	87	0.5	212.5	0.01	0.15	62.50	91.5	
100	266.95	7/7/2013 19:02	88	0.5	213	0.01	0.15	62.65	90.1	
100	268.62	7/7/2013 20:42	89	0.5	213.5	0.01	0.15	62.79	94.3	
100	270.28	7/7/2013 22:22	90	0.5	214	0.01	0.15	62.94	96.9	
100	271.95	7/8/2013 0:02	91	0.5	214.5	0.01	0.15	63.09	90.3	
100	273.62	7/8/2013 1:42	92	0.5	215	0.01	0.15	63.24	92.1	
100	275.28	7/8/2013 3:22	93	0.5	215.5	0.01	0.15	63.38	88.6	
100	276.95	7/8/2013 5:02	94	0.5	216	0.01	0.15	63.53	93.6	
100	278.62	7/8/2013 6:42	95	0.5	216.5	0.01	0.15	63.68	96.2	
100	280.28	7/8/2013 8:22	96	0.5	217	0.01	0.15	63.82	96.1	
100	281.95	7/8/2013 10:02	97	0.5	217.5	0.01	0.15	63.97	93.5	
100	283.62	7/8/2013 11:42	98	0.5	218	0.01	0.15	64.12	98.1	
100	285.28	7/8/2013 13:22	99	0.5	218.5	0.01	0.15	64.26	93.7	
100	286.95	7/8/2013 15:02	100	0.5	219	0.01	0.15	64.41	88.6	

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-6. Column Test Data for GJAST 19-6

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	6/27/13 15:51	1	3	3	0.03	0.91	0.91	1985	
100	3.33	6/27/2013 17:31	2	3	6	0.03	0.91	1.82	585.3	
100	5.00	6/27/2013 19:11	3	3.5	9.5	0.04	1.06	2.88	340.3	
100	6.67	6/27/2013 20:51	4	4	13.5	0.04	1.21	4.09	655.9	
100	8.33	6/27/2013 22:31	5	4	17.5	0.04	1.21	5.30	1315	
100	10.00	6/28/2013 0:11	6	4.5	22	0.05	1.36	6.67	1781	
100	11.67	6/28/2013 1:51	7	4	26	0.04	1.21	7.88	1830	
100	13.33	6/28/2013 3:31	8	4.5	30.5	0.05	1.36	9.24	1640	
100	15.00	6/28/2013 5:11	9	4	34.5	0.04	1.21	10.45	1690	
100	16.67	6/28/2013 6:51	10	4	38.5	0.04	1.21	11.67	1459	
100	18.33	6/28/2013 8:31	11	4	42.5	0.04	1.21	12.88	1324	
100	20.00	6/28/2013 10:11	12	4	46.5	0.04	1.21	14.09	1291	
100	21.67	6/28/2013 11:51	13	3.5	50	0.04	1.06	15.15	1118	
100	23.33	6/28/2013 13:31	14	4	54	0.04	1.21	16.36	1053	
100	25.00	6/28/2013 15:11	15	4	58	0.04	1.21	17.58	1076	
100	26.67	6/28/2013 16:51	16	4	62	0.04	1.21	18.79	787.3	
100	28.33	6/28/2013 18:31	17	4	66	0.04	1.21	20.00	804.3	
100	30.00	6/28/2013 20:11	18	4	70	0.04	1.21	21.21	711	
100	31.67	6/28/2013 21:51	19	4	74	0.04	1.21	22.42	695.7	
100	33.33	6/28/2013 23:31	20	4.5	78.5	0.05	1.36	23.79	636.8	
100	35.00	6/29/2013 1:11	21	4.5	83	0.05	1.36	25.15	550.7	Pump and fraction collector off @ 2:51 6/29
1529	60.48	6/30/2013 2:40	22	3	86	0.03	0.91	26.06	620.4	Pump and fraction collector on @ 02:40 6/30
100	62.15	6/30/2013 4:20	23	3.5	89.5	0.04	1.06	27.12	643.8	
100	63.82	6/30/2013 6:00	24	4	93.5	0.04	1.21	28.33	575.5	
100	65.48	6/30/2013 7:40	25	4	97.5	0.04	1.21	29.55	453.5	
100	67.15	6/30/2013 9:20	26	4.5	102	0.05	1.36	30.91	373.9	
100	68.82	6/30/2013 11:00	27	4	106	0.04	1.21	32.12	343.7	
100	70.48	6/30/2013 12:40	28	4	110	0.04	1.21	33.33	336.9	
100	72.15	6/30/2013 14:20	29	4	114	0.04	1.21	34.55	307.7	
100	73.82	6/30/2013 16:00	30	4	118	0.04	1.21	35.76	313	
100	75.48	6/30/2013 17:40	31	4	122	0.04	1.21	36.97	293.2	
100	77.15	6/30/2013 19:20	32	4	126	0.04	1.21	38.18	272.9	
100	78.82	6/30/2013 21:00	33	4	130	0.04	1.21	39.39	256.1	
100	80.48	6/30/2013 22:40	34	4	134	0.04	1.21	40.61	237.4	
100	82.15	7/1/2013 0:20	35	4	138	0.04	1.21	41.82	229.5	
100	83.82	7/1/2013 2:00	36	4	142	0.04	1.21	43.03	203.1	
100	85.48	7/1/2013 3:40	37	4	146	0.04	1.21	44.24	177	
100	87.15	7/1/2013 5:20	38	4	150	0.04	1.21	45.45	171.5	
100	88.82	7/1/2013 7:00	39	4	154	0.04	1.21	46.67	168.3	

Table D-6. Column Test Data for GJAST 19-6 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	90.48	7/1/2013 8:40	40	4	158	0.04	1.21	47.88	162	Pump and fraction collector off @ 10:20 7/1
5860	188.15	7/5/2013 10:20	41	0.5	158.5	0.01	0.15	48.03	220.9	Pump and fraction collector on @ 10:20 7/5
100	189.82	7/5/2013 12:00	42	0.5	159	0.01	0.15	48.18	190.8	
100	191.48	7/5/2013 13:40	43	0.5	159.5	0.01	0.15	48.33	262.5	
100	193.15	7/5/2013 15:20	44	0.25	159.75	0.00	0.08	48.41		Insufficient sample for U analysis
100	194.82	7/5/2013 17:00	45	0.25	160	0.00	0.08	48.48	451.9	
100	196.48	7/5/2013 18:40	46	0.3	160.3	0.00	0.09	48.58	478.1	
100	198.15	7/5/2013 20:20	47	0.3	160.6	0.00	0.09	48.67	660.5	
100	199.82	7/5/2013 22:00	48	0.3	160.9	0.00	0.09	48.76		Insufficient sample for U analysis
100	201.48	7/5/2013 23:40	49	0.3	161.2	0.00	0.09	48.85	649.6	
100	203.15	7/6/2013 1:20	50	0.3	161.5	0.00	0.09	48.94	618.7	
100	204.82	7/6/2013 3:00	51	0.3	161.8	0.00	0.09	49.03	597.7	
100	206.48	7/6/2013 4:40	52	0.5	162.3	0.01	0.15	49.18	473.9	
100	208.15	7/6/2013 6:20	53	0.5	162.8	0.01	0.15	49.33	379.6	
100	209.82	7/6/2013 8:00	54	0.5	163.3	0.01	0.15	49.48	395.1	
100	211.48	7/6/2013 9:40	55	1	164.3	0.01	0.30	49.79	287.6	Bottom frit replaced
100	213.15	7/6/2013 11:20	56	2.5	166.8	0.03	0.76	50.55	236.3	
100	214.82	7/6/2013 13:00	57	3	169.8	0.03	0.91	51.45	239.2	
100	216.48	7/6/2013 14:40	58	3	172.8	0.03	0.91	52.36	197.1	
100	218.15	7/6/2013 16:20	59	3	175.8	0.03	0.91	53.27	149.6	
100	219.82	7/6/2013 18:00	60	3	178.8	0.03	0.91	54.18	141.1	
100	221.48	7/6/2013 19:40	61	3.5	182.3	0.04	1.06	55.24	153.3	
100	223.15	7/6/2013 21:20	62	3.5	185.8	0.04	1.06	56.30	153.7	
100	224.82	7/6/2013 23:00	63	3.5	189.3	0.04	1.06	57.36	149.8	
100	226.48	7/7/2013 0:40	64	3.5	192.8	0.04	1.06	58.42	141.7	
100	228.15	7/7/2013 2:20	65	3.5	196.3	0.04	1.06	59.48	136.7	
100	229.82	7/7/2013 4:00	66	4	200.3	0.04	1.21	60.70	132.3	
100	231.48	7/7/2013 5:40	67	4	204.3	0.04	1.21	61.91	127	
100	233.15	7/7/2013 7:20	68	4	208.3	0.04	1.21	63.12	120.1	
100	234.82	7/7/2013 9:00	69	3.5	211.8	0.04	1.06	64.18	121.6	
100	236.48	7/7/2013 10:40	70	3.5	215.3	0.04	1.06	65.24	117.7	
100	238.15	7/7/2013 12:20	71	3.5	218.8	0.04	1.06	66.30	114.9	
100	239.82	7/7/2013 14:00	72	3	221.8	0.03	0.91	67.21	113.4	
100	241.48	7/7/2013 15:40	73	3.5	225.3	0.04	1.06	68.27	109.8	
100	243.15	7/7/2013 17:20	74	3	228.3	0.03	0.91	69.18	106.4	
100	244.82	7/7/2013 19:00	75	3	231.3	0.03	0.91	70.09	105.3	
100	246.48	7/7/2013 20:40	76	3	234.3	0.03	0.91	71.00	102.1	
100	248.15	7/7/2013 22:20	77	3	237.3	0.03	0.91	71.91	96.5	
100	249.82	7/8/2013 0:00	78	3	240.3	0.03	0.91	72.82	92.1	
100	251.48	7/8/2013 1:40	79	3	243.3	0.03	0.91	73.73	87.3	

Table D-6. Column Test Data for GJAST 19-6 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	253.15	7/8/2013 3:20	80	3	246.3	0.03	0.91	74.64	84.1	
100	254.82	7/8/2013 5:00	81	3	249.3	0.03	0.91	75.55	80	
100	256.48	7/8/2013 6:40	82	3	252.3	0.03	0.91	76.45	78.5	
100	258.15	7/8/2013 8:20	83	3	255.3	0.03	0.91	77.36	76.2	Discontinued flow to column, end of 83

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-7. Column Test Data for GJAST 19-8

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start (Date/Time)	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	8/26/13 17:13	1	9	9	0.09	1.18	1.18	2395.3	
100	3.33	8/26/2013 18:53	2	10	19	0.10	1.33	2.52	2226.3	
100	5.00	8/26/2013 20:33	3	10	29	0.10	1.33	3.85	1377	
100	6.67	8/26/2013 22:13	4	10	39	0.10	1.33	5.18	828	
100	8.33	8/26/2013 23:53	5	10	49	0.10	1.33	6.52	580.3	
100	10.00	8/27/2013 1:33	6	10	59	0.10	1.33	7.85	455.9	
100	11.67	8/27/2013 3:13	7	9.5	68.5	0.10	1.27	9.12	333.9	
100	13.33	8/27/2013 4:53	8	10	78.5	0.10	1.33	10.45	267.1	
100	15.00	8/27/2013 6:33	9	10	88.5	0.10	1.33	11.78	216.1	
100	16.67	8/27/2013 8:13	10	10	98.5	0.10	1.33	13.12	186.9	
100	18.33	8/27/2013 9:53	11	10	108.5	0.10	1.33	14.45	169	
100	20.00	8/27/2013 11:33	12	10	118.5	0.10	1.33	15.78	147.9	
100	21.67	8/27/2013 13:13	13	10	128.5	0.10	1.33	17.12	127.3	
100	23.33	8/27/2013 14:53	14	10	138.5	0.10	1.33	18.45	119	
100	25.00	8/27/2013 16:33	15	10	148.5	0.10	1.33	19.78	114.1	
100	26.67	8/27/2013 18:13	16	10	158.5	0.10	1.33	21.12	115.9	
100	28.33	8/27/2013 19:53	17	10	168.5	0.10	1.33	22.45	109.3	
100	30.00	8/27/2013 21:33	18	10	178.5	0.10	1.33	23.78	103.6	Pump off @23:13 8/27
1540	55.67	8/28/13 23:13	19	7.5	186	0.08	1.00	24.78	183.3	Pump on @23:13 8/28, some air in outflow line
100	57.33	8/29/2013 0:53	20	10	196	0.10	1.33	26.12	173.7	
100	59.00	8/29/2013 2:33	21	10	206	0.10	1.33	27.45	130.3	
100	60.67	8/29/2013 4:13	22	10	216	0.10	1.33	28.78	118.5	
100	62.33	8/29/2013 5:53	23	10	226	0.10	1.33	30.12	99.1	
100	64.00	8/29/2013 7:33	24	10	236	0.10	1.33	31.45	81.5	
100	65.67	8/29/2013 9:13	25	10	246	0.10	1.33	32.78	69.3	
100	67.33	8/29/2013 10:53	26	10	256	0.10	1.33	34.12	63.1	
100	69.00	8/29/2013 12:33	27	10	266	0.10	1.33	35.45	55.6	
100	70.67	8/29/2013 14:13	28	10	276	0.10	1.33	36.78	48.5	
100	72.33	8/29/2013 15:53	29	10	286	0.10	1.33	38.12	47.5	
100	74.00	8/29/2013 17:33	30	10	296	0.10	1.33	39.45	45.6	
100	75.67	8/29/2013 19:13	31	10	306	0.10	1.33	40.78	43.3	
100	77.33	8/29/2013 20:53	32	10	316	0.10	1.33	42.12	39.9	
100	79.00	8/29/2013 22:33	33	10	326	0.10	1.33	43.45	39.6	
100	80.67	8/30/2013 0:13	34	10	336	0.10	1.33	44.78	40.2	
100	82.33	8/30/2013 1:53	35	10	346	0.10	1.33	46.12	36	
100	84.00	8/30/2013 3:33	36	10	356	0.10	1.33	47.45	33.7	
100	85.67	8/30/2013 5:13	37	10	366	0.10	1.33	48.78	31.1	
100	87.33	8/30/2013 6:53	38	10	376	0.10	1.33	50.12	29.1	Pump off @8:33 8/30
5860	185.00	9/3/13 8:33	39	4	380	0.04	0.53	50.65	98.9	Pump on @8:33 9/3
100	186.67	9/3/2013 10:13	40	3	383	0.03	0.40	51.05	134.7	
100	188.33	9/3/2013 11:53	41	1.5	384.5	0.02	0.20	51.25	128.8	

Table D-7. Column Test Data for GJAST 19-8 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start (Date/Time)	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	190.00	9/3/2013 13:33	42	1	385.5	0.01	0.13	51.38	123.3	
100	191.67	9/3/2013 15:13	43	1	386.5	0.01	0.13	51.52	116.5	
100	193.33	9/3/2013 16:53	44	0.5	387	0.01	0.07	51.58	111.8	
100	195.00	9/3/2013 18:33	45	0.5	387.5	0.01	0.07	51.65	97.2	
100	196.67	9/3/2013 20:13	46	0.25	387.75	0.00	0.03	51.68	91.6	
100	198.33	9/3/2013 21:53	47	0.25	388	0.00	0.03	51.72	82.8	
100	200.00	9/3/2013 23:33	48	0.1	388.1	0.00	0.01	51.73		Insufficient sample for U analysis
100	201.67	9/4/2013 1:13	49	0.1	388.2	0.00	0.01	51.74		Insufficient sample for U analysis
100	203.33	9/4/2013 2:53	50	0	388.2	0.00	0.00	51.74		Insufficient sample for U analysis
100	205.00	9/4/2013 4:33	51	0	388.2	0.00	0.00	51.74		Insufficient sample for U analysis
100	206.67	9/4/2013 6:13	52	0	388.2	0.00	0.00	51.74		Insufficient sample for U analysis
100	208.33	9/4/2013 7:53	53	0.5	388.7	0.01	0.07	51.81		Insufficient sample for U analysis. Air bubble in syringe tubing acting as vapor lock, removed, flow reestablished.
100	210.00	9/4/2013 9:33	54	8.5	397.2	0.09	1.13	52.94	116.2	
100	211.67	9/4/2013 11:13	55	10	407.2	0.10	1.33	54.28	99	
100	213.33	9/4/2013 12:53	56	10	417.2	0.10	1.33	55.61	83	
100	215.00	9/4/2013 14:33	57	10	427.2	0.10	1.33	56.94	69	
100	216.67	9/4/2013 16:13	58	10	437.2	0.10	1.33	58.28	60.2	
100	218.33	9/4/2013 17:53	59	10	447.2	0.10	1.33	59.61	52.7	
100	220.00	9/4/2013 19:33	60	10	457.2	0.10	1.33	60.94	45.3	
100	221.67	9/4/2013 21:13	61	10	467.2	0.10	1.33	62.28	40.1	
100	223.33	9/4/2013 22:53	62	10	477.2	0.10	1.33	63.61	34.7	
100	225.00	9/5/2013 0:33	63	10	487.2	0.10	1.33	64.94	29.3	
100	226.67	9/5/2013 2:13	64	10	497.2	0.10	1.33	66.28	26.5	
100	228.33	9/5/2013 3:53	65	10	507.2	0.10	1.33	67.61	22.4	
100	230.00	9/5/2013 5:33	66	10	517.2	0.10	1.33	68.94		No U analysis, tube missing, sample lost to tray
100	231.67	9/5/2013 7:13	67	10	527.2	0.10	1.33	70.28	17.7	
100	233.33	9/5/2013 8:53	68	10	537.2	0.10	1.33	71.61	16.7	
100	235.00	9/5/2013 10:33	69	10	547.2	0.10	1.33	72.94	15.2	
100	236.67	9/5/2013 12:13	70	10	557.2	0.10	1.33	74.28	15.5	Discontinued flow at 13:53 9/5

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-8. Column Test Data for GJAST 19-9

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start (Date/Time)	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	10/7/13 15:58	1	10	10	0.1	1.27	1.27	2682	
100	3.33	10/7/2013 17:38	2	10	20	0.10	1.27	2.53	1807	
100	5.00	10/7/2013 19:18	3	10	30	0.10	1.27	3.80	1332	
100	6.67	10/7/2013 20:58	4	10	40	0.10	1.27	5.06	848.7	
100	8.33	10/7/2013 22:38	5	10	50	0.10	1.27	6.33	470.7	
100	10.00	10/8/2013 0:18	6	10	60	0.10	1.27	7.59	392.9	
100	11.67	10/8/2013 1:58	7	9.5	69.5	0.10	1.20	8.80	293.3	
100	13.33	10/8/2013 3:38	8	9.5	79	0.10	1.20	10.00	217.8	
100	15.00	10/8/2013 5:18	9	9.5	88.5	0.10	1.20	11.20	211.7	
100	16.67	10/8/2013 6:58	10	9.5	98	0.10	1.20	12.41	181.3	
100	18.33	10/8/2013 8:38	11	10	108	0.10	1.27	13.67	175	
100	20.00	10/8/2013 10:18	12	10	118	0.10	1.27	14.94	145.9	
100	21.67	10/8/2013 11:58	13	10	128	0.10	1.27	16.20	136	
100	23.33	10/8/2013 13:38	14	10	138	0.10	1.27	17.47	126.9	
100	25.00	10/8/2013 15:18	15	10	148	0.10	1.27	18.73	117.1	
100	26.67	10/8/2013 16:58	16	10	158	0.10	1.27	20.00	124.7	
100	28.33	10/8/2013 18:38	17	10	168	0.10	1.27	21.27	112.5	
100	30.00	10/8/2013 20:18	18	10	178	0.10	1.27	22.53	116.4	Pump off @21:58 10/8
1547	55.78	10/9/2013 22:05	19	9	187	0.09	1.14	23.67	222.8	Pump on @22:05 10/9
100	57.45	10/9/2013 23:45	20	10	197	0.10	1.27	24.94	172.9	
100	59.12	10/10/2013 1:25	21	10	207	0.10	1.27	26.20	138.6	
100	60.78	10/10/2013 3:05	22	10	217	0.10	1.27	27.47	122.1	
100	62.45	10/10/2013 4:45	23	10	227	0.10	1.27	28.73	97.7	
100	64.12	10/10/2013 6:25	24	9.5	236.5	0.10	1.20	29.94	78.7	
100	65.78	10/10/2013 8:05	25	10	246.5	0.10	1.27	31.20	72.4	
100	67.45	10/10/2013 9:45	26	9	255.5	0.09	1.14	32.34	64.1	
100	69.12	10/10/2013 11:25	27	9	264.5	0.09	1.14	33.48	57.7	
100	70.78	10/10/2013 13:05	28	8.5	273	0.09	1.08	34.56	51.7	
100	72.45	10/10/2013 14:45	29	0.1	273.1	0.00	0.01	34.57		Insufficient sample for U analysis

Notes:

Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:

cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-9. Column Test Data for GJAST 19-15

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	10/7/13 15:48	1	9.5	9.5	0.095	1.53	1.53	344.5	
100	3.33	10/7/2013 17:28	2	10	19.5	0.10	1.61	3.15	109.6	
100	5.00	10/7/2013 19:08	3	10	29.5	0.10	1.61	4.76	66.4	
100	6.67	10/7/2013 20:48	4	10	39.5	0.10	1.61	6.37	39	
100	8.33	10/7/2013 22:28	5	10	49.5	0.10	1.61	7.98	31.5	
100	10.00	10/8/2013 0:08	6	10	59.5	0.10	1.61	9.60	26.3	
100	11.67	10/8/2013 1:48	7	9.5	69	0.10	1.53	11.13	21.6	
100	13.33	10/8/2013 3:28	8	10	79	0.10	1.61	12.74	19.5	
100	15.00	10/8/2013 5:08	9	10	89	0.10	1.61	14.35	17.1	
100	16.67	10/8/2013 6:48	10	10	99	0.10	1.61	15.97	14.4	
100	18.33	10/8/2013 8:28	11	10	109	0.10	1.61	17.58	13.3	
100	20.00	10/8/2013 10:08	12	10	119	0.10	1.61	19.19	12.5	
100	21.67	10/8/2013 11:48	13	10	129	0.10	1.61	20.81	11.6	
100	23.33	10/8/2013 13:28	14	10	139	0.10	1.61	22.42	12.5	
100	25.00	10/8/2013 15:08	15	10	149	0.10	1.61	24.03	10.2	
100	26.67	10/8/2013 16:48	16	10	159	0.10	1.61	25.65	10.3	
100	28.33	10/8/2013 18:28	17	10	169	0.10	1.61	27.26	9.9	
100	30.00	10/8/2013 20:08	18	10	179	0.10	1.61	28.87	8.7	Pump off @21:48 10/8
1555	55.92	10/9/2013 22:03	19	5	184	0.05	0.67	29.54	31.5	Pump on @22:03 10/9
100	57.58	10/9/2013 23:43	20	2	186	0.02	0.27	29.80	42.6	
100	59.25	10/10/2013 1:23	21	1	187	0.01	0.13	29.94	46.3	
100	60.92	10/10/2013 3:03	22	0.5	187.5	0.01	0.07	30.00	54.2	
100	62.58	10/10/2013 4:43	23	0.5	188	0.01	0.07	30.07	65.6	
100	64.25	10/10/2013 6:23	24	0.2	188.2	0.00	0.03	30.10		Insufficient sample for U analysis
100	65.92	10/10/2013 8:03	25	0.2	188.4	0.00	0.03	30.12		Insufficient sample for U analysis

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-10. Column Test Data for GJAST 20-9

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	8/26/13 17:10	1	9	9	0.09	1.20	1.20	2736.5	
100	3.33	8/26/2013 18:50	2	9	18	0.09	1.20	2.40	2976	
100	5.00	8/26/2013 20:30	3	9.5	27.5	0.10	1.27	3.67	1395	
100	6.67	8/26/2013 22:10	4	9.5	37	0.10	1.27	4.93	781.7	
100	8.33	8/26/2013 23:50	5	10	47	0.10	1.33	6.27	518.7	
100	10.00	8/27/2013 1:30	6	9.5	56.5	0.10	1.27	7.53	379.4	
100	11.67	8/27/2013 3:10	7	10	66.5	0.10	1.33	8.87	311.7	
100	13.33	8/27/2013 4:50	8	10	76.5	0.10	1.33	10.20	252.6	
100	15.00	8/27/2013 6:30	9	10	86.5	0.10	1.33	11.53	200.9	
100	16.67	8/27/2013 8:10	10	10	96.5	0.10	1.33	12.87	169.8	
100	18.33	8/27/2013 9:50	11	10	106.5	0.10	1.33	14.20	163.9	
100	20.00	8/27/2013 11:30	12	9.5	116	0.10	1.27	15.47	148.4	
100	21.67	8/27/2013 13:10	13	10	126	0.10	1.33	16.80	129.1	
100	23.33	8/27/2013 14:50	14	10	136	0.10	1.33	18.13	121.2	
100	25.00	8/27/2013 16:30	15	10	146	0.10	1.33	19.47	115.1	
100	26.67	8/27/2013 18:10	16	10	156	0.10	1.33	20.80	104.9	
100	28.33	8/27/2013 19:50	17	10	166	0.10	1.33	22.13	97.5	
100	30.00	8/27/2013 21:30	18	10	176	0.10	1.33	23.47	86.4	Pump off @23:10 8/27
1540	55.67	8/28/13 23:10	19	7	183	0.07	0.93	24.40	150.6	Pump on @23:10 8/28, some air in outflow line
100	57.33	8/29/2013 0:50	20	9.5	192.5	0.10	1.27	25.67	161.9	
100	59.00	8/29/2013 2:30	21	10	202.5	0.10	1.33	27.00	135.9	
100	60.67	8/29/2013 4:10	22	10	212.5	0.10	1.33	28.33	104.7	
100	62.33	8/29/2013 5:50	23	10	222.5	0.10	1.33	29.67	83.6	
100	64.00	8/29/2013 7:30	24	8	230.5	0.08	1.07	30.73	65.8	
100	65.67	8/29/2013 9:10	25	4.5	235	0.05	0.60	31.33	62.1	
100	67.33	8/29/2013 10:50	26	4	239	0.04	0.53	31.87	60.5	
100	69.00	8/29/2013 12:30	27	6.5	245.5	0.07	0.87	32.73	60.9	
100	70.67	8/29/2013 14:10	28	10	255.5	0.10	1.33	34.07	56.1	
100	72.33	8/29/2013 15:50	29	10	265.5	0.10	1.33	35.40	51.7	
100	74.00	8/29/2013 17:30	30	10	275.5	0.10	1.33	36.73	46.6	
100	75.67	8/29/2013 19:10	31	10	285.5	0.10	1.33	38.07	43.9	
100	77.33	8/29/2013 20:50	32	10	295.5	0.10	1.33	39.40	39.1	
100	79.00	8/29/2013 22:30	33	10	305.5	0.10	1.33	40.73	37.1	
100	80.67	8/30/2013 0:10	34	10	315.5	0.10	1.33	42.07	33.1	
100	82.33	8/30/2013 1:50	35	10	325.5	0.10	1.33	43.40	32.2	
100	84.00	8/30/2013 3:30	36	10	335.5	0.10	1.33	44.73	30.7	
100	85.67	8/30/2013 5:10	37	10	345.5	0.10	1.33	46.07	27.1	
100	87.33	8/30/2013 6:50	38	10	355.5	0.10	1.33	47.40	25.8	Pump off @8:30 8/30

Table D-10. Column Test Data for GJAST 20-9 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
5860	185.00	9/3/13 8:30	39	7	362.5	0.07	0.93	48.33	108.3	Pump on @8:30 9/3
100	186.67	9/3/2013 10:10	40	10	372.5	0.10	1.33	49.67	122.1	
100	188.33	9/3/2013 11:50	41	10	382.5	0.10	1.33	51.00	100.3	
100	190.00	9/3/2013 13:30	42	10	392.5	0.10	1.33	52.33	85.4	
100	191.67	9/3/2013 15:10	43	10	402.5	0.10	1.33	53.67	71.9	
100	193.33	9/3/2013 16:50	44	10	412.5	0.10	1.33	55.00	61	
100	195.00	9/3/2013 18:30	45	10	422.5	0.10	1.33	56.33	49.9	
100	196.67	9/3/2013 20:10	46	10	432.5	0.10	1.33	57.67	46.3	
100	198.33	9/3/2013 21:50	47	10	442.5	0.10	1.33	59.00	34.5	
100	200.00	9/3/2013 23:30	48	10	452.5	0.10	1.33	60.33	29.6	
100	201.67	9/4/2013 1:10	49	10	462.5	0.10	1.33	61.67	25.4	
100	203.33	9/4/2013 2:50	50	10	472.5	0.10	1.33	63.00	22.7	
100	205.00	9/4/2013 4:30	51	10	482.5	0.10	1.33	64.33	19.3	
100	206.67	9/4/2013 6:10	52	10	492.5	0.10	1.33	65.67	17.2	
100	208.33	9/4/2013 7:50	53	10	502.5	0.10	1.33	67.00	16	
100	210.00	9/4/2013 9:30	54	10	512.5	0.10	1.33	68.33	14.7	
100	211.67	9/4/2013 11:10	55	10	522.5	0.10	1.33	69.67	14.5	
100	213.33	9/4/2013 12:50	56	10	532.5	0.10	1.33	71.00	14.5	
100	215.00	9/4/2013 14:30	57	10	542.5	0.10	1.33	72.33	14.3	Discontinued flow to column at 16:10

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-11. Column Test Data for GJAST 20-10 Small

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	5/14/2013 11:08	1	7.5	7.5	0.0750	1.250	1.25	4905	Pale yellow color
100	3.33	5/14/2013 12:48	2	7.5	15	0.0750	1.250	2.50	6113	
100	5.00	5/14/2013 14:28	3	7.5	22.5	0.0750	1.250	3.75	4298	
100	6.67	5/14/2013 16:08	4	7.5	30	0.0750	1.250	5.00	2683	
100	8.33	5/14/2013 17:48	5	7.5	37.5	0.0750	1.250	6.25	1788	
100	10.00	5/14/2013 19:28	6	7.5	45	0.0750	1.250	7.50	1374.3	
100	11.67	5/14/2013 21:08	7	9.5	54.5	0.0950	1.583	9.08	949.3	
100	13.33	5/14/2013 22:48	8	8	62.5	0.0800	1.333	10.42	879.3	
100	15.00	5/15/2013 0:28	9	8	70.5	0.0800	1.333	11.75	750	
100	16.67	5/15/2013 2:08	10	8	78.5	0.0800	1.333	13.08	610.5	
100	18.33	5/15/2013 3:48	11	8	86.5	0.0800	1.333	14.42	494.4	
100	20.00	5/15/2013 5:28	12	8	94.5	0.0800	1.333	15.75	361.3	
100	21.67	5/15/2013 7:08	13	7.5	102	0.0750	1.250	17.00	380.3	
100	23.33	5/15/2013 8:48	14	7.5	109.5	0.0750	1.250	18.25	350.9	
100	25.00	5/15/2013 10:28	15	7.5	117	0.0750	1.250	19.50	321.3	
100	26.67	5/15/2013 12:08	16	7.5	124.5	0.0750	1.250	20.75	313.5	
100	28.33	5/15/2013 13:48	17	7.5	132	0.0750	1.250	22.00	280.9	
100	30.00	5/15/2013 15:28	18	7.5	139.5	0.0750	1.250	23.25	264.5	
100	31.67	5/15/2013 17:08	19	7.5	147	0.0750	1.250	24.50	257.5	pump and fraction collector off @ 18:48
1541	57.35	5/16/2013 18:49	20	7.5	154.5	0.0750	1.250	25.75	379.1	pump on @ 18:45, fraction collector on @ 18:49
100	59.02	5/16/2013 20:29	21	7.5	162	0.0750	1.250	27.00	377.2	
100	60.68	5/16/2013 22:09	22	7.5	169.5	0.0750	1.250	28.25	366.4	
100	62.35	5/16/2013 23:49	23	7.5	177	0.0750	1.250	29.50	291.9	
100	64.02	5/17/2013 1:29	24	7.5	184.5	0.0750	1.250	30.75	261.9	
100	65.68	5/17/2013 3:09	25	7.5	192	0.0750	1.250	32.00	234.5	
100	67.35	5/17/2013 4:49	26	7.5	199.5	0.0750	1.250	33.25	226.7	
100	69.02	5/17/2013 6:29	27	7.5	207	0.0750	1.250	34.50	176.9	
100	70.68	5/17/2013 8:09	28	7.5	214.5	0.0750	1.250	35.75	162.2	
100	72.35	5/17/2013 9:49	29	7.5	222	0.0750	1.250	37.00	146.4	
100	74.02	5/17/2013 11:29	30	7.5	229.5	0.0750	1.250	38.25	132.3	
100	75.68	5/17/2013 13:09	31	7.5	237	0.0750	1.250	39.50	128.1	
100	77.35	5/17/2013 14:49	32	7.5	244.5	0.0750	1.250	40.75	107.9	
100	79.02	5/17/2013 16:29	33	7.5	252	0.0750	1.250	42.00	102.8	
100	80.68	5/17/2013 18:09	34	7.5	259.5	0.0750	1.250	43.25	100.7	
100	82.35	5/17/2013 19:49	35	7.5	267	0.0750	1.250	44.50	89.7	
100	84.02	5/17/2013 21:29	36	7.5	274.5	0.0750	1.250	45.75	89.1	
100	85.68	5/17/2013 23:09	37	7.5	282	0.0750	1.250	47.00	77.6	
100	87.35	5/18/2013 0:49	38	7.5	289.5	0.0750	1.250	48.25	74.4	pump and fraction collector off @ 02:30 5/18
5861	185.03	5/22/2013 2:30	39	7.5	297	0.0750	1.250	49.50	196.5	pump and fraction collector on @ 02:30 5/22
100	186.70	5/22/2013 4:10	40	7.5	304.5	0.0750	1.250	50.75	190.3	
100	188.37	5/22/2013 5:50	41	7.5	312	0.0750	1.250	52.00	158.2	

Table D-11. Column Test Data for GJAST 20-10 Small (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	190.03	5/22/2013 7:30	42	7.5	319.5	0.0750	1.250	53.25	129.4	
100	191.70	5/22/2013 9:10	43	7.5	327	0.0750	1.250	54.50	113.3	Clear tubing to prevent blockage
100	193.37	5/22/2013 10:50	44	7.5	334.5	0.0750	1.250	55.75	106	
100	195.03	5/22/2013 12:30	45	7	341.5	0.0700	1.167	56.92	94.7	
100	196.70	5/22/2013 14:10	46	7.5	349	0.0750	1.250	58.17	88.7	
100	198.37	5/22/2013 15:50	47	7.5	356.5	0.0750	1.250	59.42	84	
100	200.03	5/22/2013 17:30	48	7.5	364	0.0750	1.250	60.67	79.7	
100	201.70	5/22/2013 19:10	49	7.5	371.5	0.0750	1.250	61.92	75.4	
100	203.37	5/22/2013 20:50	50	7.5	379	0.0750	1.250	63.17	73.4	
100	205.03	5/22/2013 22:30	51	7.5	386.5	0.0750	1.250	64.42	71.4	
100	206.70	5/23/2013 0:10	52	7.5	394	0.0750	1.250	65.67	67.9	
100	208.37	5/23/2013 1:50	53	7.5	401.5	0.0750	1.250	66.92	67	
100	210.03	5/23/2013 3:30	54	7.5	409	0.0750	1.250	68.17	62.3	
100	211.70	5/23/2013 5:10	55	7.5	416.5	0.0750	1.250	69.42	60.8	
100	213.37	5/23/2013 6:50	56	7.5	424	0.0750	1.250	70.67	58.7	
100	215.03	5/23/2013 8:30	57	7.5	431.5	0.0750	1.250	71.92	56.3	
100	216.70	5/23/2013 10:10	58	7.5	439	0.0750	1.250	73.17	55.6	
100	218.37	5/23/2013 11:50	59	7.5	446.5	0.0750	1.250	74.42	51.6	
100	220.03	5/23/2013 13:30	60	7.5	454	0.0750	1.250	75.67	54	
100	221.70	5/23/2013 15:10	61	15	469	0.1500	2.500	78.17	45.4	Tube rack mistake for increased volume?
100	223.37	5/23/2013 16:50	62	7.5	476.5	0.0750	1.250	79.42	46	
100	225.03	5/23/2013 18:30	63	7.5	484	0.0750	1.250	80.67	45.3	
100	226.70	5/23/2013 20:10	64	7.5	491.5	0.0750	1.250	81.92	43.6	
100	228.37	5/23/2013 21:50	65	7.5	499	0.0750	1.250	83.17	42.1	
100	230.03	5/23/2013 23:30	66	7.5	506.5	0.0750	1.250	84.42	40.3	
100	231.70	5/24/2013 1:10	67	7.5	514	0.0750	1.250	85.67	40.8	
100	233.37	5/24/2013 2:50	68	7.5	521.5	0.0750	1.250	86.92	37.3	
100	235.03	5/24/2013 4:30	69	7.5	529	0.0750	1.250	88.17	37.6	
100	236.70	5/24/2013 6:10	70	7.5	536.5	0.0750	1.250	89.42	37	
100	238.37	5/24/2013 7:50	71	7.5	544	0.0750	1.250	90.67	36.2	Discontinue flow to column

Notes:

Soil weight = 36.07 g.

Soil volume = 20.85 mL.

Soil length = 11.8 cm.

Soil dry density = 1.73 g/mL.

Pore volume = 7.3 mL.

Syringe pump used for experiment.

Abbreviations:

cm = centimeter

g/mL = gram/milliliter

µg/L = microgram per liter

mL = milliliter

mL/min = milliliter per minute

Table D-12. Column Test Data for GJAST 20-10 Large

Run Time (Minutes)	Cum. Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	pH Standard Units	Alkalinity (mg/L as CaCO ₃)	Total Organic Carbon (mg/L)	Chloride (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Iron (mg/L)	Manganese (mg/L)	Magnesium (mg/L)	Calcium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Comments
170	2.83	11/6/2013 10:45	1	25	25	0.1471	0.833	0.83	2002	7.6	101	52	87.9	1	4180	0.13	0.063	328	530	1640	35.6	Pale yellow color
170	5.67	11/6/2013 13:35	2	24	49	0.1412	0.800	1.63	4254	8.01	152	14	84.8	1	2830	0.050	0.068	288	563	582	25.4	Very pale yellow
170	8.50	11/6/2013 16:25	3	14.5	63.5	0.0853	0.483	2.12	7749	8.16	204	14	90.4	2.5	2670	0.25	0.12	335	663	405	27.7	Switch to syringe pump @0.156 mL/min, sample filtered 0.45 µm
170	11.33	11/6/2013 19:15	4	21.5	85	0.1265	0.717	2.83	5927	8.07	215	12	89.7	2.5	2630	0.050	0.14	304	613	354	22.1	Sample filtered 0.45 µm
170	14.17	11/6/2013 22:05	5	24.5	109.5	0.1441	0.817	3.65	4241	8.02	237	12	89.1	2.5	2530	0.050	0.12	278	589	335	20.6	Sample filtered 0.45 µm
170	17.00	11/7/2013 0:55	6	25	134.5	0.1471	0.833	4.48														No tube, sample missed, assume 25 mL
170	19.83	11/7/2013 3:45	7	25.00	159.5	0.1471	0.833	5.32														No tube, sample missed, assume 25 mL
170	22.67	11/7/2013 6:35	8	25.00	184.5	0.1471	0.833	6.15	1799.5	7.89	282	10	89.1	2.5	2010	0.59	0.16	144	680	349	20.1	No tube, sample missed, add tube @117 left to collect, assume 25 mL
170	25.50	11/7/2013 9:25	9	25.50	210	0.1500	0.850	7.00	1580	7.79	289	10	89.4	2.5	1940	0.14	0.13	109	629	330	17.8	
170	28.33	11/7/2013 12:15	10	26.00	236	0.1529	0.867	7.87	1387	7.65	290	10	87.9	2.5	2010	0.17	0.14	90.2	629	337	17.8	
170	31.17	11/7/2013 15:05	11	25.50	261.5	0.1500	0.850	8.72	1144.3	7.88	273	17	82.3	2.5	2000	0.30	0.15	78.5	644	332	17.5	
170	34.00	11/7/2013 17:55	12	25.50	287	0.1500	0.850	9.57	1011.5	7.93	293	10	88.9	2.5	2000	0.050	0.14	72.1	621	322	17.0	
170	36.83	11/7/2013 20:45	13	25.50	312.5	0.1500	0.850	10.42	898.5	7.90	292	9.8	87.8	2.5	1940	0.20	0.15	68.2	619	330	16.9	
170	39.67	11/7/2013 23:35	14	25.50	338	0.1500	0.850	11.27	814.5	7.88	283	9.7	88.6	2.5	1970	0.22	0.15	66.2	619	323	16.2	
170	42.50	11/8/2013 2:25	15	22.00	360	0.1294	0.733	12.00	676.3	7.87	303	9.6	88.8	2.5	1950	0.080	0.15	64.3	666	336	16.5	
170	45.33	11/8/2013 5:15	16	16.50	376.5	0.0971	0.550	12.55	674	7.89	296	9.8	88.4	2.5	1960	0.71	0.21	72.9	744	390	20.6	
170	48.17	11/8/2013 8:05	17	16.00	392.5	0.0941	0.533	13.08	671.8	7.52	282	9.1	89.4	2.5	1970	0.087	0.17	67.1	670	349	17.8	
170	51.00	11/8/2013 10:55	18	15.50	408	0.0912	0.517	13.60	667.8	7.52	280	9.7	89.1	2.5	1960	1.14	0.19	65.6	655	344	18.0	
170	53.83	11/8/2013 13:45	19	16.50	424.5	0.0971	0.550	14.15	613.8	7.71	289	12	90.2	2.5	1990	0.24	0.19	64.8	659	342	18.0	Adjust syringe pump rate to 0.180 mL/min @ start of tube 19
170	56.67	11/8/2013 16:35	20	19.00	443.5	0.1118	0.633	14.78	610.9	7.99	234	8.8	90.9	2.5	2030	0.11	0.32	62.6	704	329	16.4	

Table D-12. Column Test Data for GJAST 20-10 Large (continued)

Run Time (Minutes)	Cum. Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	pH Standard Units	Alkalinity (mg/L as CaCO ₃)	Total Organic Carbon (mg/L)	Chloride (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Iron (mg/L)	Manganese (mg/L)	Magnesium (mg/L)	Calcium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Comments
170	59.50	11/8/2013 19:25	21	20.00	463.5	0.1176	0.667	15.45	609.1	8.06	231	9.4	90.4	2.5	2000	0.11	0.29	61.8	671	333	16.2	
170	62.33	11/8/2013 22:15	22	20.00	483.5	0.1176	0.667	16.12	526.1	7.88	233	8.4	90.6	2.5	2020	0.11	0.27	63.9	684	326	15.3	
170	65.17	11/9/2013 1:05	23	19.50	503	0.1147	0.650	16.77	530.7	7.82	239	8.3	91.4	2.5	2020	0.10	0.29	62.4	666	321	14.8	
170	68.00	11/9/2013 3:55	24	20.00	523	0.1176	0.667	17.43	511.8	7.78	247	8.8	90.4	2.5	1980	0.082	0.27	61.4	675	329	14.1	
170	70.83	11/9/2013 6:45	25	20.00	543	0.1176	0.667	18.10	451.9	7.75	255	9.2	90.2	2.5	2030	0.15	0.26	61.6	660	326	14.1	
170	73.67	11/9/2013 9:35	26	26.50	569.5	0.1559	0.883	18.98	443.3	7.70	274	9.4	93.2	2.5	2000	0.083	0.22	60.6	649	329	13.8	
170	76.50	11/9/2013 12:25	27	29.00	598.5	0.1706	0.967	19.95														Fraction collector malfunction, missing tube. Assume 29 mL based on collected volume of 7 mL in 40 min from tube 28
170	79.33	11/9/2013 15:15	28	29.00	627.5	0.1706	0.967	20.92	383.5	7.71	264	8.5	89.4	2.5	2020	0.22	0.44	62.4	804	346	15.2	Adjust syringe pump rate to .156 mL/min @ 50 min left in tube 28
170	82.17	11/9/2013 18:05	29	25.00	652.5	0.1471	0.833	21.75	364.5	7.64	272	9.6	90.6	2.5	2020	0.074	0.23	58.7	676	338	12.9	
170	85.00	11/9/2013 20:55	30	25.00	677.5	0.1471	0.833	22.58	334.3	7.56	284	8.2	90	2.5	1970	0.089	0.21	56.8	652	328	12.2	
170	87.83	11/9/2013 23:45	31	25.50	703	0.1500	0.850	23.43	310.1	7.54	288	7.7	90	2.5	1980	0.050	0.21	58.4	639	316	11.3	
170	90.67	11/10/2013 2:35	32	25.50	728.5	0.1500	0.850	24.28	293	7.53	296	9.3	89.3	2.5	1950	0.052	0.20	57.0	617	307	10.8	
170	93.50	11/10/2013 5:25	33	26.00	754.5	0.1529	0.867	25.15	277	7.58	293	9.4	89.8	2.5	1990	0.050	0.22	57.7	636	314	10.7	DC flow to coumn end tube 33 for 2.5 day shutdown
3770	156.33	11/12/2013 20:15	34	22.00	776.5	0.0058	0.733	25.88	421.9	7.91	271	9.3	88.8	2.5	1870	0.050	0.32	62.0	651	332	10.7	Restart flow, start Frac col @ 20:15
170	159.17	11/12/2013 23:05	35	25.00	801.5	0.1471	0.833	26.72	393.3	7.92	285	11	89.9	2.5	1910	0.050	0.32	61.5	623	332	10.4	
170	162.00	11/13/2013 1:55	36	25.00	826.5	0.1471	0.833	27.55	367.1	7.88	301	9.2	89.3	2.5	1880	0.060	0.37	62.4	624	314	9.94	
170	164.83	11/13/2013 4:45	37	25.50	852	0.1500	0.850	28.40	324.1	7.82	319	9.7	89.3	2.5	1870	0.055	0.40	62.4	638	321	9.69	
170	167.67	11/13/2013 7:35	38	25.50	877.5	0.1500	0.850	29.25	302.7	7.70		2.9	89.7	2.5	1790	0.050	0.42	62.0	633	317	9.52	
170	170.50	11/13/2013 10:25	39	25.50	903	0.1500	0.850	30.10	283.9	7.83	317	11	89.1	2.5	1810	0.050	0.44	61.5	646	321	9.48	
170	173.33	11/13/2013 13:15	40	25.50	928.5	0.1500	0.850	30.95	282.5	7.72	320	11	89.3	2.5	1820	0.050	0.45	60.1	637	324	9.68	

Table D-12. Column Test Data for GJAST 20-10 Large (continued)

Run Time (Minutes)	Cum. Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	pH Standard Units	Alkalinity (mg/L as CaCO ₃)	Total Organic Carbon (mg/L)	Chloride (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Iron (mg/L)	Manganese (mg/L)	Magnesium (mg/L)	Calcium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Comments
170	176.17	11/13/2013 16:05	41	25.50	954	0.1500	0.850	31.80	277.3	7.85	308	9	90.5	2.5	1850	0.068	0.49	56.8	647	314	9.02	
170	179.00	11/13/2013 18:55	42	25.00	979	0.1471	0.833	32.63	233.1	7.92	306	10	90	2.5	1840	0.050	0.46	56.4	642	314	9.00	
170	181.83	11/13/2013 21:45	43	25.50	1004.5	0.1500	0.850	33.48	199.1	7.95	322	10	90.2	2.5	1820	0.050	0.43	56.6	622	312	8.86	
170	184.67	11/14/2013 0:35	44	25.50	1030	0.1500	0.850	34.33	193.7	7.92	325	10	89.5	2.5	1810	0.050	0.42	56.0	622	306	8.56	
170	187.50	11/14/2013 3:25	45	25.50	1055.5	0.1500	0.850	35.18	170.3	7.87	325	10	89.7	2.5	1750	0.050	0.40	54.7	607	310	8.23	
170	190.33	11/14/2013 6:15	46	26.00	1081.5	0.1529	0.867	36.05	152.5	7.77	320	11	89.3	2.5	1800	0.050	0.40	54.6	609	307	8.30	
170	193.17	11/14/2013 9:05	47	25.50	1107	0.1500	0.850	36.90	151.3	7.91	320	11	90.1	2.5	1820	0.050	0.38	55.1	620	308	8.35	
170	196.00	11/14/2013 11:55	48	26.00	1133	0.1529	0.867	37.77	137.5	7.85	323	10	89.8	2.5	1800	0.050	0.38	53.6	616	311	8.42	
170	198.83	11/14/2013 14:45	49	18.00	1151	0.1059	0.600	38.37	122.7	7.84	273	9.3	90.8	2.5	1840	0.050	0.67	54.8	702	314	8.96	
170	201.67	11/14/2013 17:35	50	25.00	1176	0.1471	0.833	39.20	119.7	7.91	306	9.3	89.6	2.5	1830	0.050	0.42	54.0	634	312	8.39	
170	204.50	11/14/2013 20:25	51	25.00	1201	0.1471	0.833	40.03	118.9	7.94	310	9.4	89.8	2.5	1800	0.050	0.39	53.8	640	313	8.23	
170	207.33	11/14/2013 23:15	52	25.00	1226	0.1471	0.833	40.87	106.2	7.97	310	11	89.5	2.5	1800	0.050	0.39	54.3	628	313	8.82	
170	210.17	11/15/2013 2:05	53	25.50	1251.5	0.1500	0.850	41.72	101.4	7.96	311	9.9	89.2	2.5	1800	0.050	0.35	52.1	604	309	8.53	
170	213.00	11/15/2013 4:55	54	25.50	1277	0.1500	0.850	42.57	95.4	7.92	315	10	88.9	2.5	1790	0.050	0.34	51.8	598	310	8.34	
170	215.83	11/15/2013 7:45	55	25.50	1302.5	0.1500	0.850	43.42	95.7	7.73	313	10	89.7	2.5	1790	0.050	0.34	51.8	600	306	8.21	
170	218.67	11/15/2013 10:35	56	26.00	1328.5	0.1529	0.867	44.28	91	7.74	315	11	88.8	2.5	1790	0.050	0.35	53.3	629	320	8.86	
170	221.50	11/15/2013 13:25	57	25.50	1354	0.1500	0.850	45.13	85.2	7.86	295	8.4	90.4	2.5	1820	0.050	0.39	55.0	637	313	8.88	
170	224.33	11/15/2013 16:15	58	25.50	1379.5	0.1500	0.850	45.98	78.5	7.95	299	9	90.4	2.5	1800	0.050	0.37	55.0	647	325	8.66	
170	227.17	11/15/2013 19:05	59	25.50	1405	0.1500	0.850	46.83	79.4	7.96	301	10	90.1	2.5	1830	0.050	0.35	55.6	634	322	8.66	
170	230.00	11/15/2013 21:55	60	25.50	1430.5	0.1500	0.850	47.68	76.7	7.97	310	9.8	90.4	2.5	1800	0.050	0.34	55.4	636	317	8.74	
170	232.83	11/16/2013 0:45	61	25.50	1456	0.1500	0.850	48.53	72.6	7.94	313	9.9	89.8	2.5	1800	0.050	0.33	55.8	638	319	8.72	
170	235.67	11/16/2013 3:35	62	26.00	1482	0.1529	0.867	49.40	72.3	7.88	308	9.4	88.7	2.5	1790	0.050	0.32	55.0	635	321	8.48	Discontinued flow @ 06:25, end of tube 62
14577	478.62	11/26/2013 6:32	63	23.00	1505	0.0016	0.767	50.17	251.7	7.87	250	8.6	85.9	2.5	1820	0.050	0.56	57.8	589	316	8.90	Restart flow 11/26 @06:32
170	481.45	11/26/2013 9:22	64	25.00	1530	0.1471	0.833	51.00	248.5	7.84	287	14	87.6	2.5	1760	0.070	0.80	62.4	575	291	8.80	
170	484.28	11/26/2013 12:12	65	26.00	1556	0.1529	0.867	51.87	230.5	7.64	306	14	86.8	2.5	1770	0.050	1.00	62.3	597	306	9.28	
170	487.12	11/26/2013 15:02	66	25.50	1581.5	0.1500	0.850	52.72	197.2	7.91	310	13	88.8	2.5	1780	0.050	1.13	57.8	619	313	9.07	

Table D-12. Column Test Data for GJAST 20-10 Large (continued)

Run Time (Minutes)	Cum. Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	pH Standard Units	Alkalinity (mg/L as CaCO ₃)	Total Organic Carbon (mg/L)	Chloride (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Iron (mg/L)	Manganese (mg/L)	Magnesium (mg/L)	Calcium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Comments
170	489.95	11/26/2013 17:52	67	25.00	1606.5	0.1471	0.833	53.55	172.9	7.98	317	11	88.6	2.5	1770	0.050	1.12	53.6	622	317	8.67	
170	492.78	11/26/2013 20:42	68	25.50	1632	0.1500	0.850	54.40	151	7.96	324	10	88.9	2.5	1760	0.050	1.08	51.6	604	303	8.30	
170	495.62	11/26/2013 23:32	69	25.50	1657.5	0.1500	0.850	55.25	143.5	7.97	334	10	88.8	2.5	1740	0.050	1.06	53.4	626	312	8.20	
170	498.45	11/27/2013 2:22	70	25.00	1682.5	0.1471	0.833	56.08	138.9	7.95	331	10	87.8	2.5	1750	0.050	1.04	53.7	620	314	8.19	
170	501.28	11/27/2013 5:12	71	26.00	1708.5	0.1529	0.867	56.95	126.1	7.88	331	9.8	88.3	2.5	1740	0.050	1.01	56.4	612	312	8.17	
170	504.12	11/27/2013 8:02	72	26.00	1734.5	0.1529	0.867	57.82	121	7.87	333	10	88.2	2.5	1760	0.050	0.96	57.6	614	315	8.10	
170	506.95	11/27/2013 10:52	73	25.50	1760	0.1500	0.850	58.67	110.3	7.77	332	10	87.5	2.5	1740	0.050	0.88	54.4	577	297	8.57	
170	509.78	11/27/2013 13:42	74	26.00	1786	0.1529	0.867	59.53	104.7	7.77	333	10	88.6	2.5	1670	0.050	0.82	54.0	560	303	8.35	
170	512.62	11/27/2013 16:32	75	25.50	1811.5	0.1500	0.850	60.38	99.1	7.92	314	10	87.3	2.5	1540	0.050	0.87	54.6	528	309	8.40	
170	515.45	11/27/2013 19:22	76	25.50	1837	0.1500	0.850	61.23	94.7	7.96	323	11	88.9	2.5	1420	0.050	0.82	56.8	468	308	8.35	
170	518.28	11/27/2013 22:12	77	26.00	1863	0.1529	0.867	62.10	92.8	8.01	330	10	88.8	2.5	1330	0.050	0.78	58.5	433	310	8.28	
170	521.12	11/28/2013 1:02	78	25.50	1888.5	0.1500	0.850	62.95	84.4	8.01	331	11	88.5	2.5	1260	0.050	0.74	57.7	400	305	8.15	
170	523.95	11/28/2013 3:52	79	25.50	1914	0.1500	0.850	63.80	83.9	7.96	336	10	88.5	2.5	1240	0.050	0.75	58.6	369	305	8.20	
170	526.78	11/28/2013 6:42	80	26.00	1940	0.1529	0.867	64.67	83.3	7.88	334	9.8	88.6	2.5	1210	0.050	0.75	59.4	352	299	8.20	
170	529.62	11/28/2013 9:32	81	25.50	1965.5	0.1500	0.850	65.52	82.7	7.93	298	8.8	90.0	2.5	1200	0.050	1.02	60.9	373	311	8.40	
170	532.45	11/28/2013 12:22	82	25.50	1991	0.1500	0.850	66.37	79.2	7.99	309	10	89.8	2.5	1190	0.050	0.95	60.5	357	312	8.46	
170	535.28	11/28/2013 15:12	83	25.50	2016.5	0.1500	0.850	67.22	74.5	8.05	322	11	89.3	2.5	1180	0.050	0.87	59.4	340	306	8.36	
170	538.12	11/28/2013 18:02	84	25.50	2042	0.1500	0.850	68.07	73.1	8.06	321	10	89.0	2.5	1160	0.050	0.83	60.1	345	306	8.37	
170	540.95	11/28/2013 20:52	85	26.00	2068	0.1529	0.867	68.93	68.9	8.07	330	10	88.8	2.5	1130	0.050	0.78	60.4	328	307	8.50	
170	543.78	11/28/2013 23:42	86	25.50	2093.5	0.1500	0.850	69.78	67.7	8.06	333	9.9	88.6	2.5	1100	0.050	0.76	60.4	308	305	8.51	
170	546.62	11/29/2013 2:32	87	25.50	2119	0.1500	0.850	70.63	66.4	8.04	334	11	88.4	2.5	1070	0.050	0.73	59.9	293	300	8.49	
170	549.45	11/29/2013 5:22	88	25.50	2144.5	0.1500	0.850	71.48	66.1	7.99	332	11	88.2	2.5	1030	0.050	0.72	60.5	280	304	8.47	
170	552.28	11/29/2013 8:12	89	25.50	2170	0.1500	0.850	72.33	63.9	7.87	334	10	88.6	2.5	1020	0.050	0.74	60.5	270	300	8.68	
170	555.12	11/29/2013 11:02	90	19.00	2189	0.1118	0.633	72.97	63.6	7.89	335	10	88.9	2.5	1010	0.050	0.75	61.0	267	309	8.82	
170	557.95	11/29/2013 13:52	91	25.50	2214.5	0.1500	0.850	73.82	62.6	7.77	335	9.5	89.3	2.5	990	0.050	0.76	60.9	253	297	8.80	Discontinued Flow @ 16:42, end of tube 91

Table D-12. Column Test Data for GJAST 20-10 Large (continued)

Notes:
Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

Table D-13. Column Test Data for GJAST 20-11

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	5/14/2013 10:56	1	8	8	0.08	1.45	1.45	2494	Yellow-brown color
100	3.33	5/14/2013 12:36	2	8	16	0.08	1.45	2.90	1507	Rest of samples clear
100	5.00	5/14/2013 14:16	3	8	24	0.08	1.45	4.35	1660	
100	6.67	5/14/2013 15:56	4	8	32	0.08	1.45	5.80	1615	
100	8.33	5/14/2013 17:36	5	8	40	0.08	1.45	7.25	1363	
100	10.00	5/14/2013 19:16	6	8	48	0.08	1.45	8.70	1235	
100	11.67	5/14/2013 20:56	7	8	56	0.08	1.45	10.14	1125.5	
100	13.33	5/14/2013 22:36	8	8	64	0.08	1.45	11.59	1068	
100	15.00	5/15/2013 0:16	9	8	72	0.08	1.45	13.04	798.5	
100	16.67	5/15/2013 1:56	10	8	80	0.08	1.45	14.49	766	
100	18.33	5/15/2013 3:36	11	8	88	0.08	1.45	15.94	744.7	
100	20.00	5/15/2013 5:16	12	8	96	0.08	1.45	17.39	703.7	
100	21.67	5/15/2013 6:56	13	8	104	0.08	1.45	18.84	626.4	
100	23.33	5/15/2013 8:36	14	8	112	0.08	1.45	20.29	588.6	
100	25.00	5/15/2013 10:16	15	8	120	0.08	1.45	21.74	519.7	
100	26.67	5/15/2013 11:56	16	8	128	0.08	1.45	23.19	523.3	
100	28.33	5/15/2013 13:36	17	8	136	0.08	1.45	24.64	501.3	Pump and fraction collector off @ 15:16
1542	54.03	5/16/2013 15:18	18	7.5	143.5	0.075	1.36	26.00	542.8	Pump on @ 15:15, fraction collector on @ 15:18
100	55.70	5/16/2013 16:58	19	8	151.5	0.08	1.45	27.45	498.5	
100	57.37	5/16/2013 18:38	20	8	159.5	0.08	1.45	28.89	453.8	
100	59.03	5/16/2013 20:18	21	8	167.5	0.08	1.45	30.34	416.9	
100	60.70	5/16/2013 21:58	22	8	175.5	0.08	1.45	31.79	373.3	
100	62.37	5/16/2013 23:38	23	8	183.5	0.08	1.45	33.24	348.9	
100	64.03	5/17/2013 1:18	24	8	191.5	0.08	1.45	34.69	344.5	
100	65.70	5/17/2013 2:58	25	8	199.5	0.08	1.45	36.14	307.3	
100	67.37	5/17/2013 4:38	26	8	207.5	0.08	1.45	37.59	278	
100	69.03	5/17/2013 6:18	27	8	215.5	0.08	1.45	39.04	261.4	
100	70.70	5/17/2013 7:58	28	8	223.5	0.08	1.45	40.49	244.9	
100	72.37	5/17/2013 9:38	29	8	231.5	0.08	1.45	41.94	233.3	
100	74.03	5/17/2013 11:18	30	7.5	239	0.08	1.36	43.30	227.8	
100	75.70	5/17/2013 12:58	31	8	247	0.08	1.45	44.75	211.7	
100	77.37	5/17/2013 14:38	32	8	255	0.08	1.45	46.20	201.3	
100	79.03	5/17/2013 16:18	33	8	263	0.08	1.45	47.64	188.5	Pump and fraction collector off @ 17:58
5862	176.73	5/21/2013 18:00	34	8	271	0.08	1.45	49.09	262.7	Pump and fraction collector on @ 18:00
100	178.40	5/21/2013 19:40	35	7.5	278.5	0.08	1.36	50.45	256.9	
100	180.07	5/21/2013 21:20	36	7	285.5	0.07	1.27	51.72	225.8	
100	181.73	5/21/2013 23:00	37	7	292.5	0.07	1.27	52.99	214.5	
100	183.40	5/22/2013 0:40	38	6	298.5	0.06	1.09	54.08	200.1	
100	185.07	5/22/2013 2:20	39	5	303.5	0.05	0.91	54.98	194.5	
100	186.73	5/22/2013 4:00	40	4.5	308	0.05	0.82	55.80	207.9	
100	188.40	5/22/2013 5:40	41	4	312	0.04	0.72	56.52	187.7	
100	190.07	5/22/2013 7:20	42	3	315	0.03	0.54	57.07	177.1	
100	191.73	5/22/2013 9:00	43	2.5	317.5	0.03	0.45	57.52	177.9	

Table D-13. Column Test Data for GJAST 20-11 (continued)

Run Time (Minutes)	Cumulative Run Time (Hours)	Tube Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	193.40	5/22/2013 10:40	44	5	322.5	0.05	0.91	58.42	175.3	clear blocked tubing @ 67" left on tube 44
100	195.07	5/22/2013 12:20	45	7	329.5	0.07	1.27	59.69	162.5	
100	196.73	5/22/2013 14:00	46	6.5	336	0.07	1.18	60.87	152.4	
100	198.40	5/22/2013 15:40	47	5.5	341.5	0.06	1.00	61.87	152.3	
100	200.07	5/22/2013 17:20	48	4.5	346	0.05	0.82	62.68	149.4	
100	201.73	5/22/2013 19:00	49	4	350	0.04	0.72	63.41	148.6	
100	203.40	5/22/2013 20:40	50	4.5	354.5	0.05	0.82	64.22	143.8	
100	205.07	5/22/2013 22:20	51	4	358.5	0.04	0.72	64.95	145.9	
100	206.73	5/23/2013 0:00	52	4	362.5	0.04	0.72	65.67	133.4	
100	208.40	5/23/2013 1:40	53	3.5	366	0.04	0.63	66.30	128.3	
100	210.07	5/23/2013 3:20	54	3.5	369.5	0.04	0.63	66.94	131.5	
100	211.73	5/23/2013 5:00	55	3.5	373	0.04	0.63	67.57	124.5	
100	213.40	5/23/2013 6:40	56	3	376	0.03	0.54	68.12	122.9	
100	215.07	5/23/2013 8:20	57	3	379	0.03	0.54	68.66	117.8	
100	216.73	5/23/2013 10:00	58	3	382	0.03	0.54	69.20	117.9	
100	218.40	5/23/2013 11:40	59	3	385	0.03	0.54	69.75	115.6	
100	220.07	5/23/2013 13:20	60	2.5	387.5	0.03	0.45	70.20	120.2	
100	221.73	5/23/2013 15:00	61	2.5	390	0.03	0.45	70.65	124.9	
100	223.40	5/23/2013 16:40	62	2.5	372	0.03	0.45	71.11	114.5	clear blocked tubing @ 12" left on tube 62
100	225.07	5/23/2013 18:20	63	3	376	0.03	0.54	71.65	110.4	
100	226.73	5/23/2013 20:00	64	3	379	0.03	0.54	72.19	114.4	
100	228.40	5/23/2013 21:40	65	2.5	381.5	0.03	0.45	72.64	102	
100	230.07	5/23/2013 23:20	66	2.5	384.5	0.03	0.45	73.10	104.6	
100	231.73	5/24/2013 1:00	67	2	387	0.02	0.36	73.46	100.8	
100	233.40	5/24/2013 2:40	68	2	389.5	0.02	0.36	73.82	105.6	
100	235.07	5/24/2013 4:20	69	2	392	0.02	0.36	74.18	100.8	
100	236.73	5/24/2013 6:00	70	2	374	0.02	0.36	74.55	87.2	
100	238.40	5/24/2013 7:40	71	3	379	0.03	0.54	75.09	99.7	replace pump tubing @ 75" left on tube 71
100	240.07	5/24/2013 9:20	72	3	382	0.03	0.54	75.63	93	
100	241.73	5/24/2013 11:00	73	3	384.5	0.03	0.54	76.18	82.7	
100	243.40	5/24/2013 12:40	74	4	388.5	0.04	0.72	76.90	93.4	replace bottom filter @ 60" left on tube 74
100	245.07	5/24/2013 14:20	75	5.5	392.5	0.06	1.00	77.90	88	

Notes:

Soil weight = 36.07 g.
 Soil volume = 20.85 mL.
 Soil length = 11.8 cm.
 Soil dry density = 1.73 g/mL.
 Pore volume = 7.3 mL.
 Syringe pump used for experiment.

Abbreviations:

cm = centimeter
 g/mL = gram/milliliter
 µg/L = microgram per liter
 mL = milliliter
 mL/min = milliliter per minute

Table D 14. Column Test Data for GJAST 20-15

Run Time (minutes)	Cumulative Run Time Hours	Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
100	1.67	8/26/13 16:58	1	9.5	9.5	0.095	1.30	1.30	704.1	
100	3.33	8/26/2013 18:38	2	10	19.5	0.100	1.37	2.67	1099.4	
100	5.00	8/26/2013 20:18	3	10	29.5	0.100	1.37	4.04	1246.7	
100	6.67	8/26/2013 21:58	4	9.5	39	0.095	1.30	5.34	1169.8	
100	8.33	8/26/2013 23:38	5	10	49	0.100	1.37	6.71	981.2	
100	10.00	8/27/2013 1:18	6	10	59	0.100	1.37	8.08	796.1	
100	11.67	8/27/2013 2:58	7	9.5	68.5	0.095	1.30	9.38	677.3	
100	13.33	8/27/2013 4:38	8	10	78.5	0.100	1.37	10.75	534.5	actual = 11
100	15.00	8/27/2013 6:18	9	10	88.5	0.100	1.37	12.12	448.5	actual = 3 fraction collector off track
100	16.67	8/27/2013 7:58	10	10	98.5	0.100	1.37	13.49	404.9	
100	18.33	8/27/2013 9:38	11	10	108.5	0.100	1.37	14.86	361.5	
100	20.00	8/27/2013 11:18	12	10	118.5	0.100	1.37	16.23	324.1	
100	21.67	8/27/2013 12:58	13	10	128.5	0.100	1.37	17.60	296.1	
100	23.33	8/27/2013 14:38	14	10	138.5	0.100	1.37	18.97	262.4	
100	25.00	8/27/2013 16:18	15	10	148.5	0.100	1.37	20.34	226.3	
100	26.67	8/27/2013 17:58	16	10	158.5	0.100	1.37	21.71	204	
100	28.33	8/27/2013 19:38	17	10	168.5	0.100	1.37	23.08	195.3	
100	30.00	8/27/2013 21:18	18	10	178.5	0.100	1.37	24.45	183.3	Pump off @22:58 8/27
1540	55.67	8/28/13 22:58	19	6.5	185	0.065	0.89	25.34	262.9	Pump on @22:58 8/28, some air in outflow line
100	57.33	8/29/2013 0:38	20	10	195	0.100	1.37	26.71	242.7	
100	59.00	8/29/2013 2:18	21	10	205	0.100	1.37	28.08	221.5	
100	60.67	8/29/2013 3:58	22	10	215	0.100	1.37	29.45	203.7	
100	62.33	8/29/2013 5:38	23	10	225	0.100	1.37	30.82	169	
100	64.00	8/29/2013 7:18	24	10	235	0.100	1.37	32.19	156.8	
100	65.67	8/29/2013 8:58	25	10	245	0.100	1.37	33.56	137.7	
100	67.33	8/29/2013 10:38	26	10	255	0.100	1.37	34.93	132.1	
100	69.00	8/29/2013 12:18	27	10	265	0.100	1.37	36.30	121.3	
100	70.67	8/29/2013 13:58	28	10	275	0.100	1.37	37.67	131.7	
100	72.33	8/29/2013 15:38	29	10	285	0.100	1.37	39.04	120.8	
100	74.00	8/29/2013 17:18	30	10	295	0.100	1.37	40.41	113	
100	75.67	8/29/2013 18:58	31	9.5	304.5	0.095	1.30	41.71	107.1	
100	77.33	8/29/2013 20:38	32	4.5	309	0.045	0.62	42.33	104.8	
100	79.00	8/29/2013 22:18	33	3	312	0.030	0.41	42.74	102	
100	80.67	8/29/2013 23:58	34	3	315	0.030	0.41	43.15	104.3	
100	57.33	8/30/2013 1:38	35	2	317	0.020	0.27	43.42	104.9	
100	59.00	8/30/2013 3:18	36	2.5	319.5	0.025	0.34	43.77	104.9	
100	60.67	8/30/2013 4:58	37	1	320.5	0.010	0.14	43.90	103.9	
100	62.33	8/30/2013 6:38	38	2	322.5	0.020	0.27	44.18	107	
100	64.00	8/30/2013 8:18	39	7	329.5	0.070	0.96	45.14	107.1	Refill syringe, increase pump speed to 1 mL/min × 30 sec to confirm operation (not through column), reset to 0.1 mL/min, flow reestablished
100	65.67	8/30/2013 9:58	40	7	336.5	0.070	0.96	46.10	104.4	
100	67.33	8/30/2013 11:38	41	7	343.5	0.070	0.96	47.05	100.3	
100	69.00	8/30/2013 13:18	42	7	350.5	0.070	0.96	48.01	100	Pump off @14:58 8/30

Table D 14. Column Test Data for GJAST 20-15 (continued)

Run Time (minutes)	Cumulative Run Time Hours	Start Date/Time	Tube Number	Water Volume in Tube (mL)	Cumulative Water Volume (mL)	Flow Rate (mL/min)	Pore Volume	Cumulative Pore Volume	Uranium (µg/L)	Comments
5860	166.67	9/3/13 14:58	43	3	353.5	0.030	0.41	48.42	115.9	Pump on @14:58 9/3
100	72.33	9/3/2013 16:38	44	5	358.5	0.050	0.68	49.11	145.3	
100	74.00	9/3/2013 18:18	45	3	361.5	0.030	0.41	49.52	138.3	
100	75.67	9/3/2013 19:58	46	3	364.5	0.030	0.41	49.93	120.5	
100	77.33	9/3/2013 21:38	47	3	367.5	0.030	0.41	50.34	124.1	
100	79.00	9/3/2013 23:18	48	2.5	370	0.025	0.34	50.68	105.7	
100	80.67	9/4/2013 0:58	49	3	373	0.030	0.41	51.10	98.8	
100	82.33	9/4/2013 2:38	50	2.5	375.5	0.025	0.34	51.44	128.3	
100	59.00	9/4/2013 4:18	51	3	378.5	0.030	0.41	51.85	100.7	
100	60.67	9/4/2013 5:58	52	9	387.5	0.090	1.23	53.08	115	
100	62.33	9/4/2013 7:38	53	9.5	397	0.095	1.30	54.38	113.1	
100	64.00	9/4/2013 9:18	54	10	407	0.100	1.37	55.75	111.5	
100	65.67	9/4/2013 10:58	55	10	417	0.100	1.37	57.12	106.5	
100	67.33	9/4/2013 12:38	56	10	427	0.100	1.37	58.49	99.9	
100	69.00	9/4/2013 14:18	57	10	437	0.100	1.37	59.86	99.6	
100	70.67	9/4/2013 15:58	58	10	447	0.100	1.37	61.23	88.5	
100	168.33	9/4/2013 17:38	59	10	457	0.100	1.37	62.60	79.5	
100	74.00	9/4/2013 19:18	60	10	467	0.100	1.37	63.97	75.5	
100	75.67	9/4/2013 20:58	61	10	477	0.100	1.37	65.34	68.4	
100	77.33	9/4/2013 22:38	62	7	484	0.070	0.96	66.30	63.4	
100	79.00	9/5/2013 0:18	63	0.5	484.5	0.005	0.07	66.37	68.5	
100	80.67	9/5/2013 1:58	64	0.1	484.6	0.001	0.01	66.38		Insufficient sample for U analysis
100	82.33	9/5/2013 3:38	65	0.1	484.7	0.001	0.01	66.40		Insufficient sample for U analysis
100	84.00	9/5/2013 5:18	66	0.1	484.8	0.001	0.01	66.41		Insufficient sample for U analysis
100	60.67	9/5/2013 6:58	67	0.1	484.9	0.001	0.01	66.42		Insufficient sample for U analysis. Air bubble in syringe tubing acting as vapor lock, removed, flow reestablished.
100	62.33	9/5/2013 8:38	68	2.5	487.4	0.025	0.34	66.77	60.6	
100	64.00	9/5/2013 10:18	69	0.5	487.9	0.005	0.07	66.84		Insufficient sample for U analysis
100	65.67	9/5/2013 11:58	70	0	487.9	0.000	0.00	66.84		Insufficient sample for U anaysis. DC flow to column at 13:38 9/5. Attempts to reestablish flow unsuccessful.

Notes:

Soil weight = 36.07 g.
Soil volume = 20.85 mL.
Soil length = 11.8 cm.
Soil dry density = 1.73 g/mL.
Pore volume = 7.3 mL.
Syringe pump used for experiment.

Abbreviations:

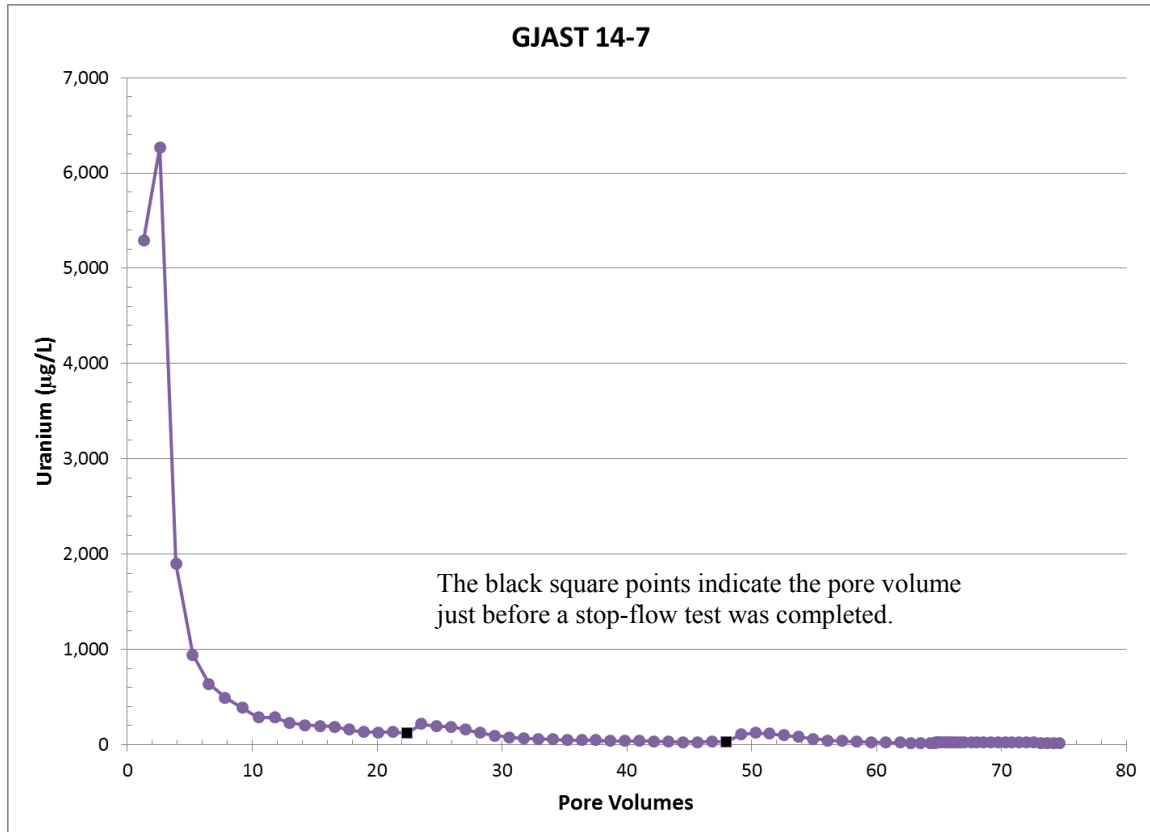
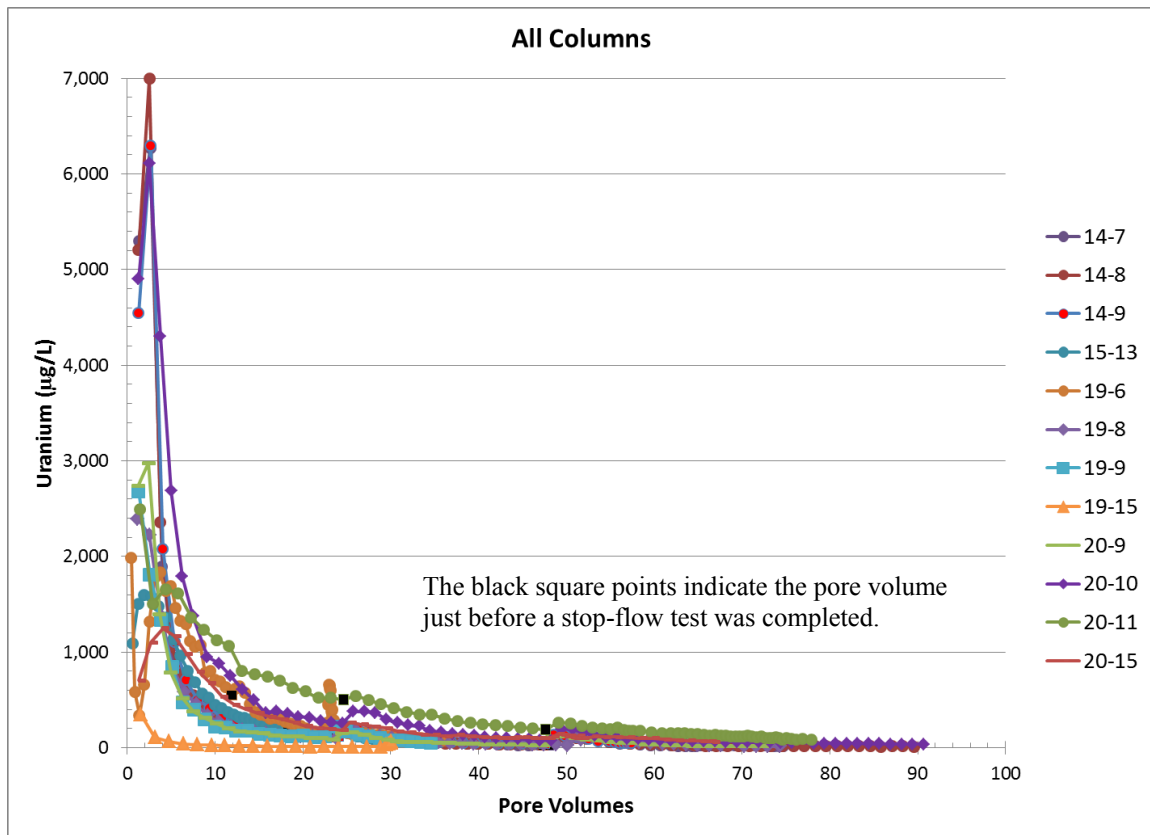
cm = centimeter
g/mL = gram/milliliter
µg/L = microgram per liter
mL = milliliter
mL/min = milliliter per minute

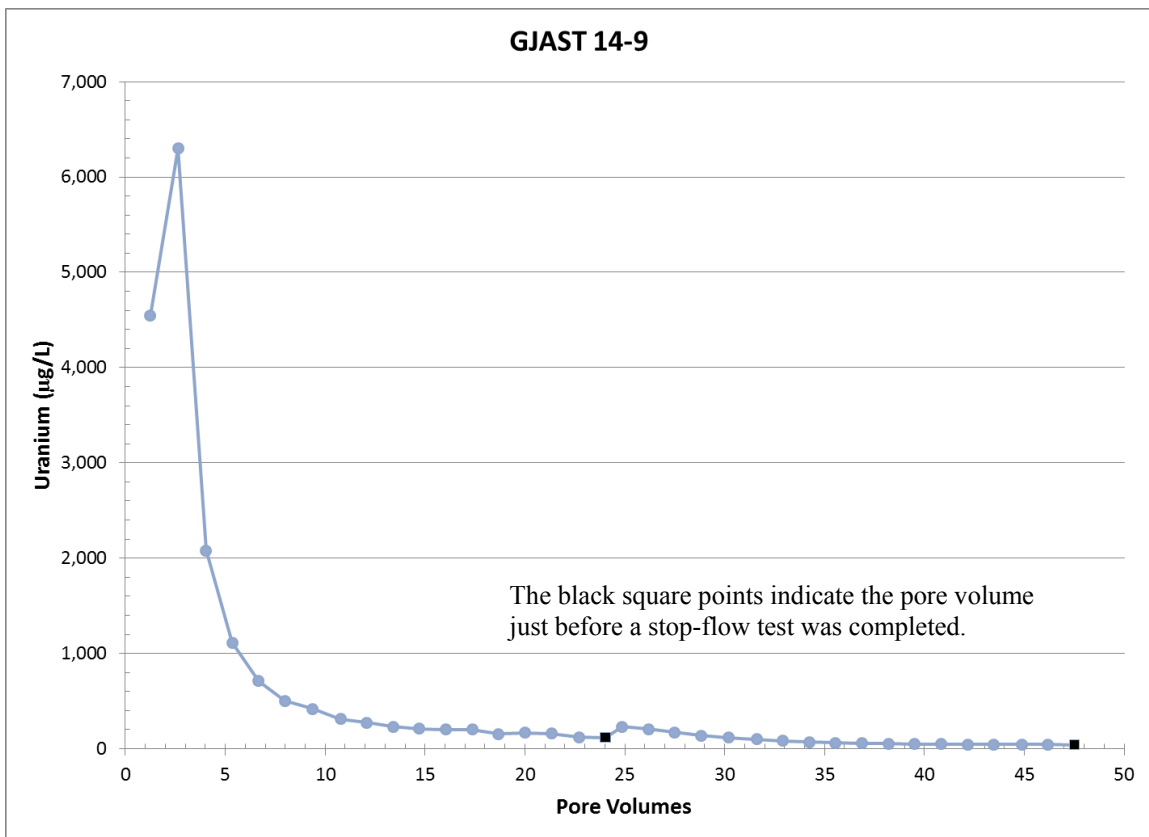
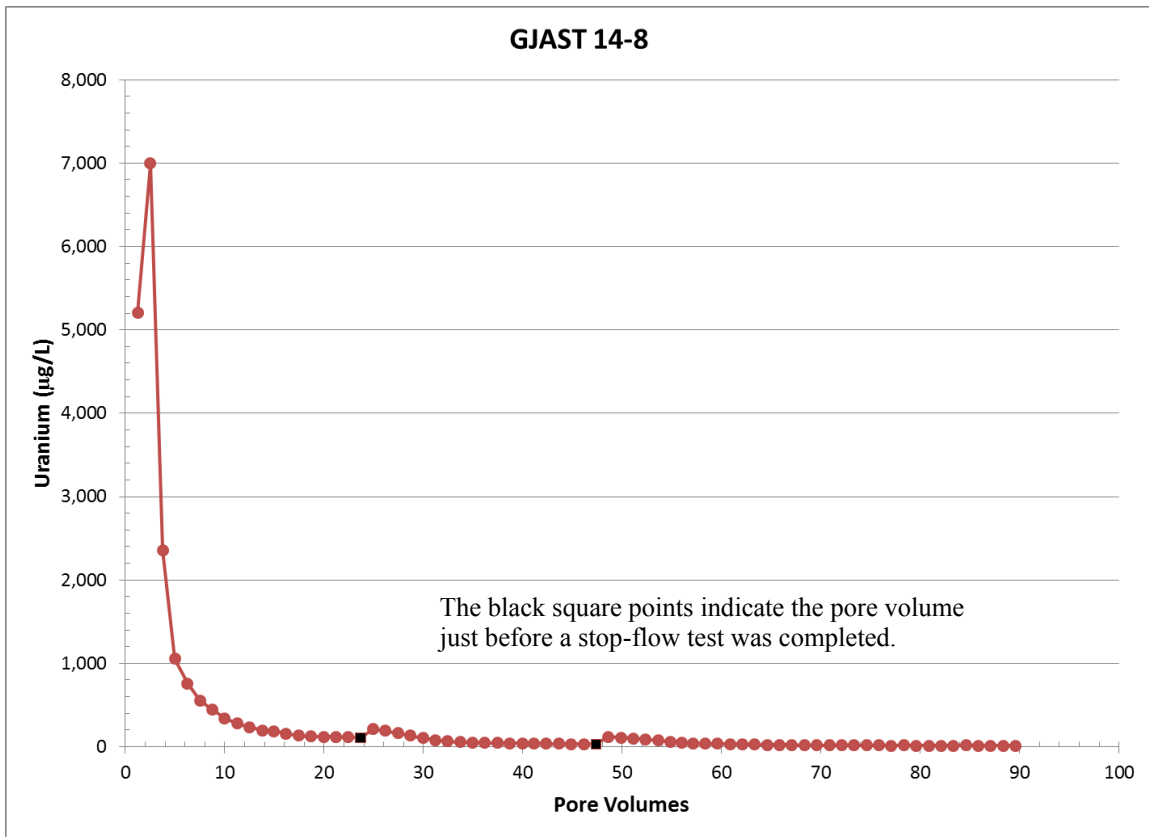
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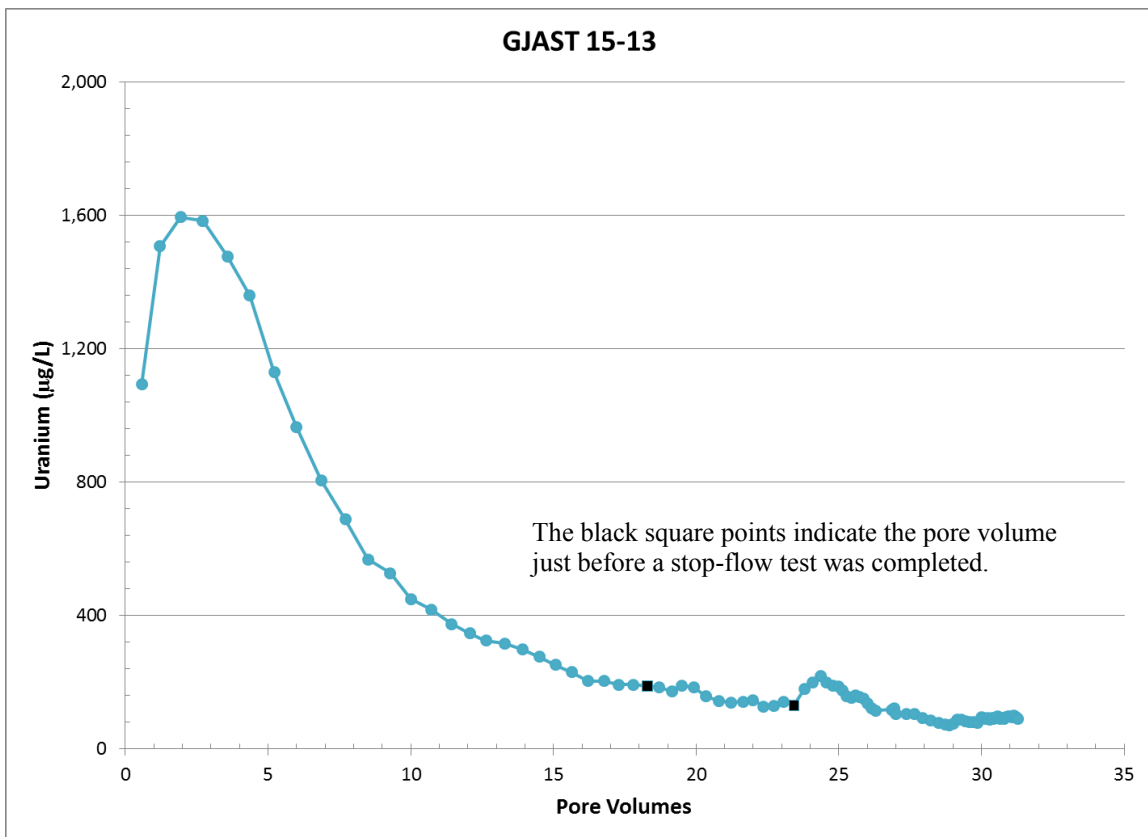
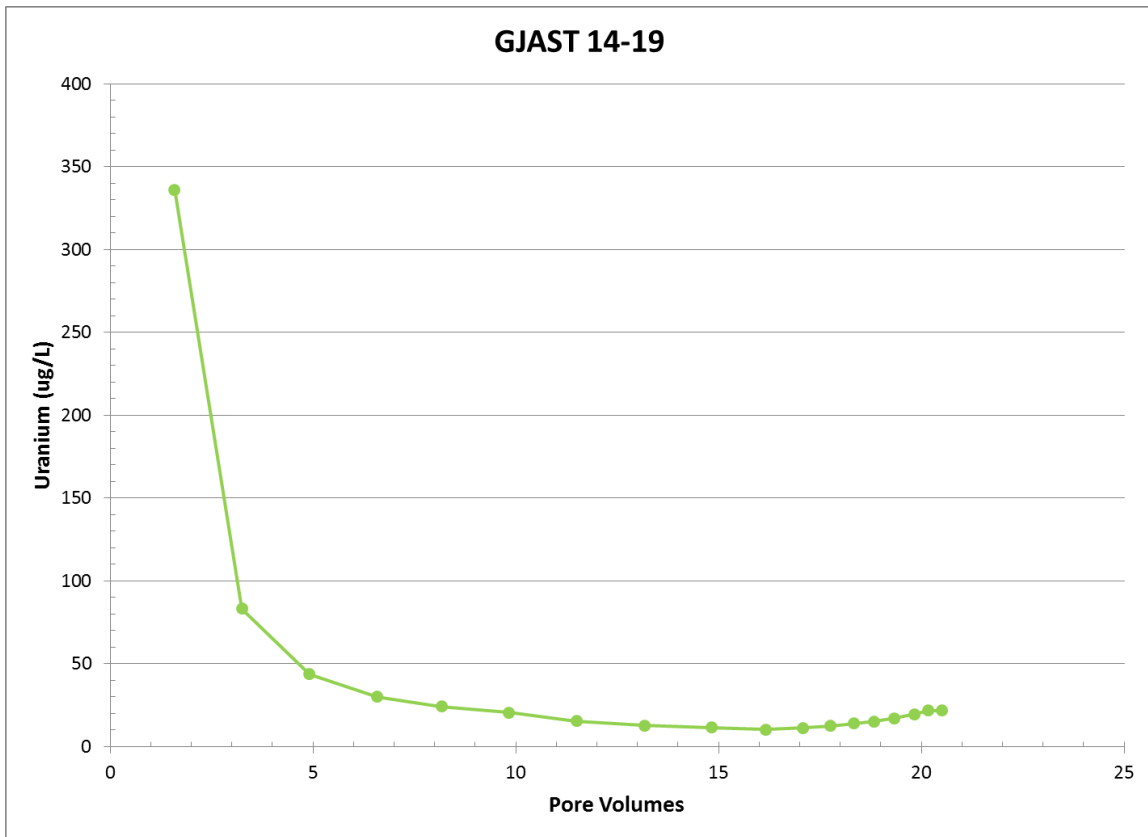
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Column Test Data**

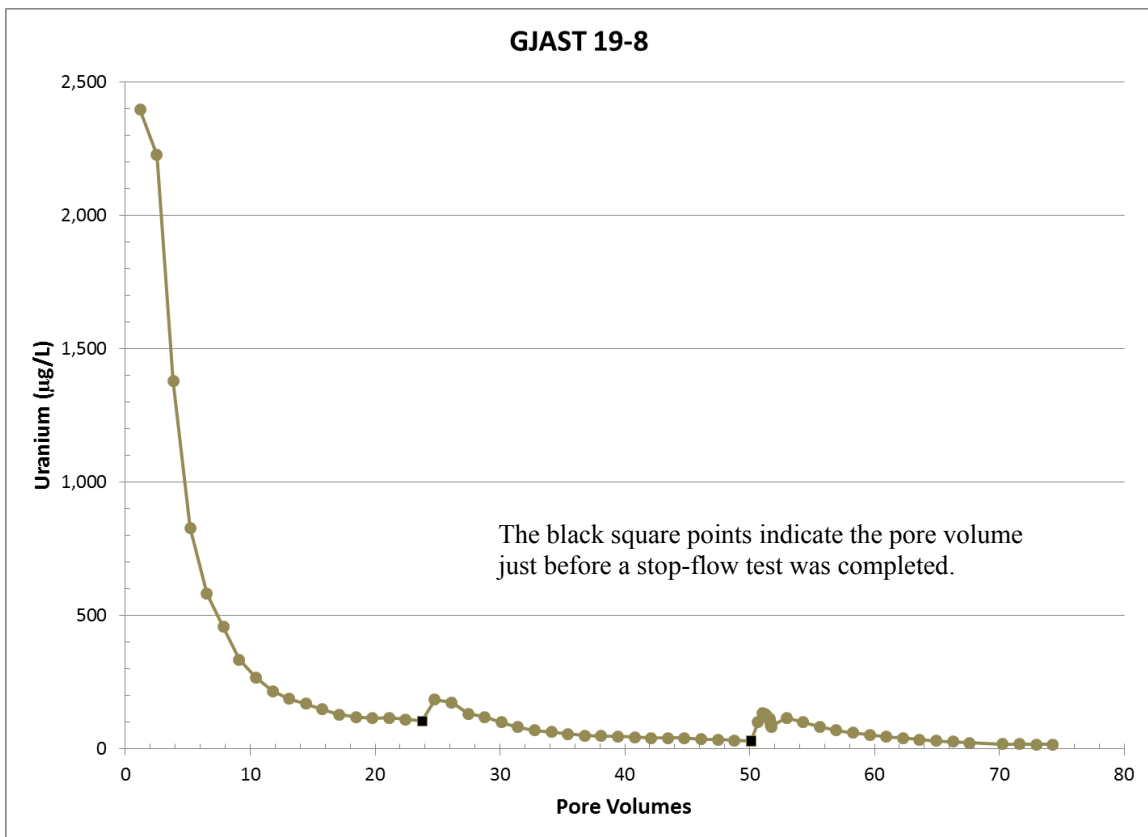
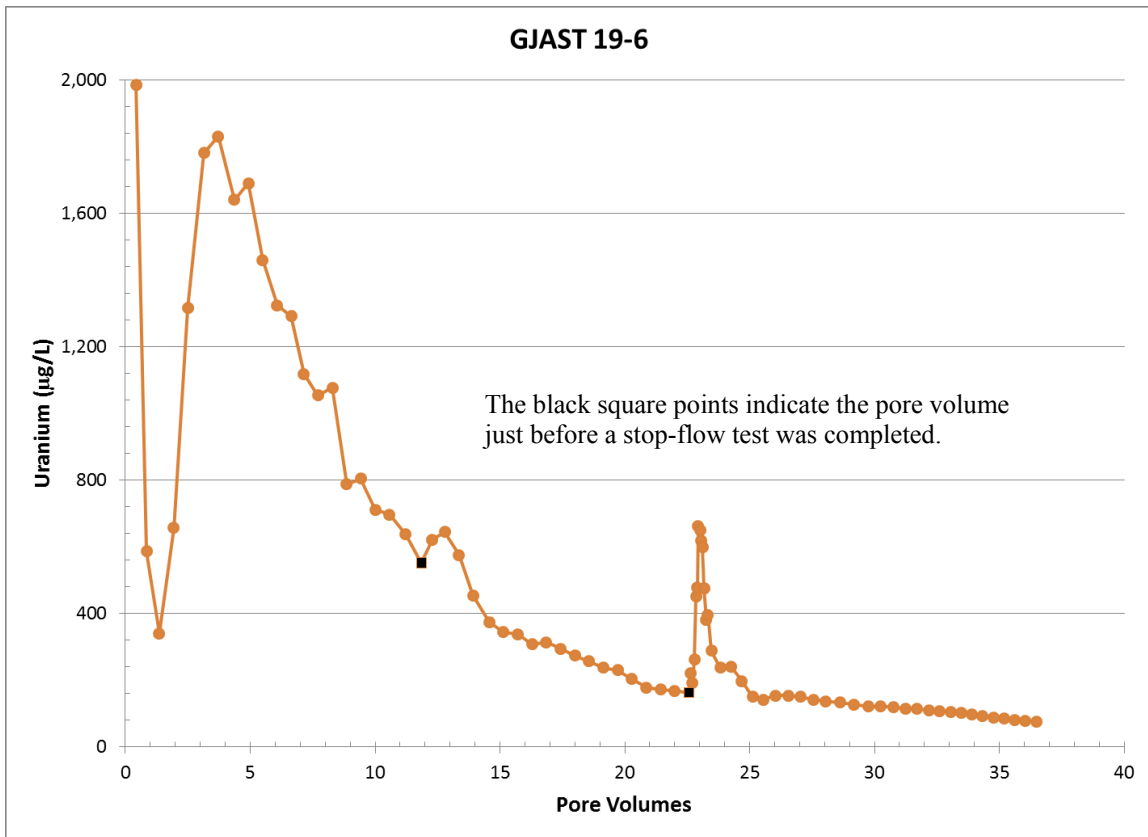
Small Columns

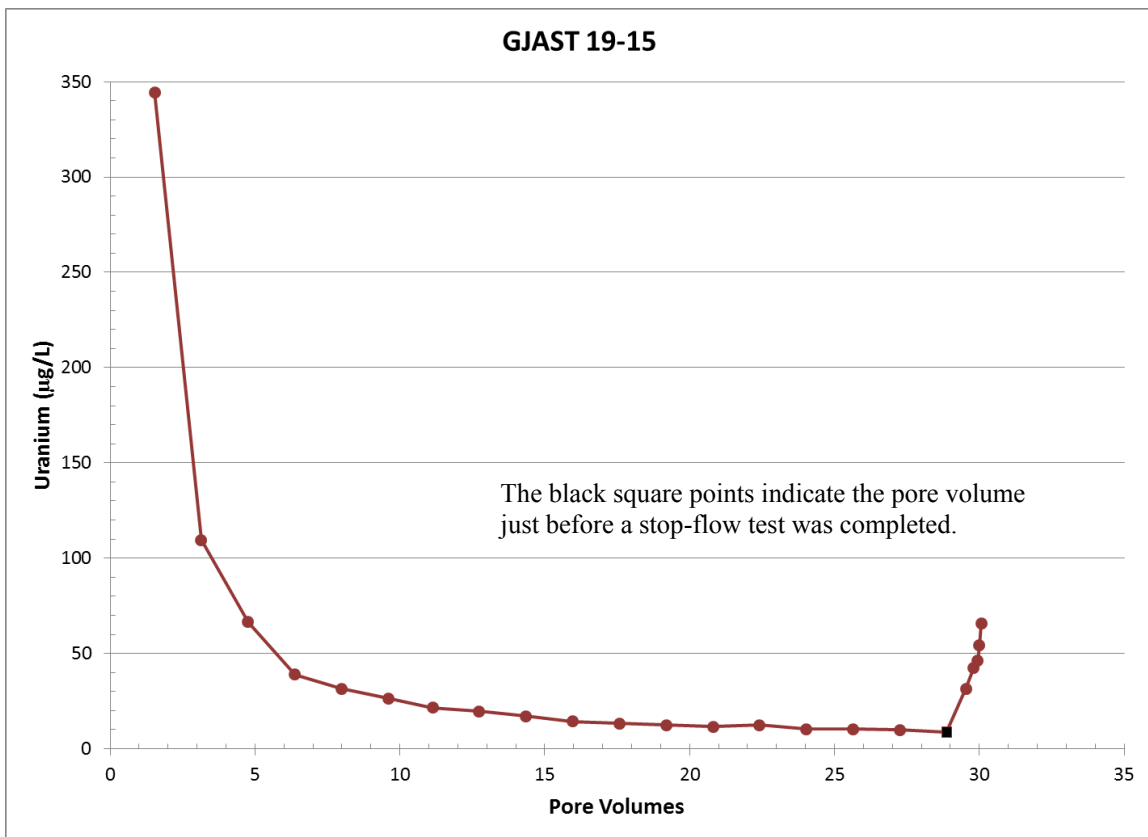
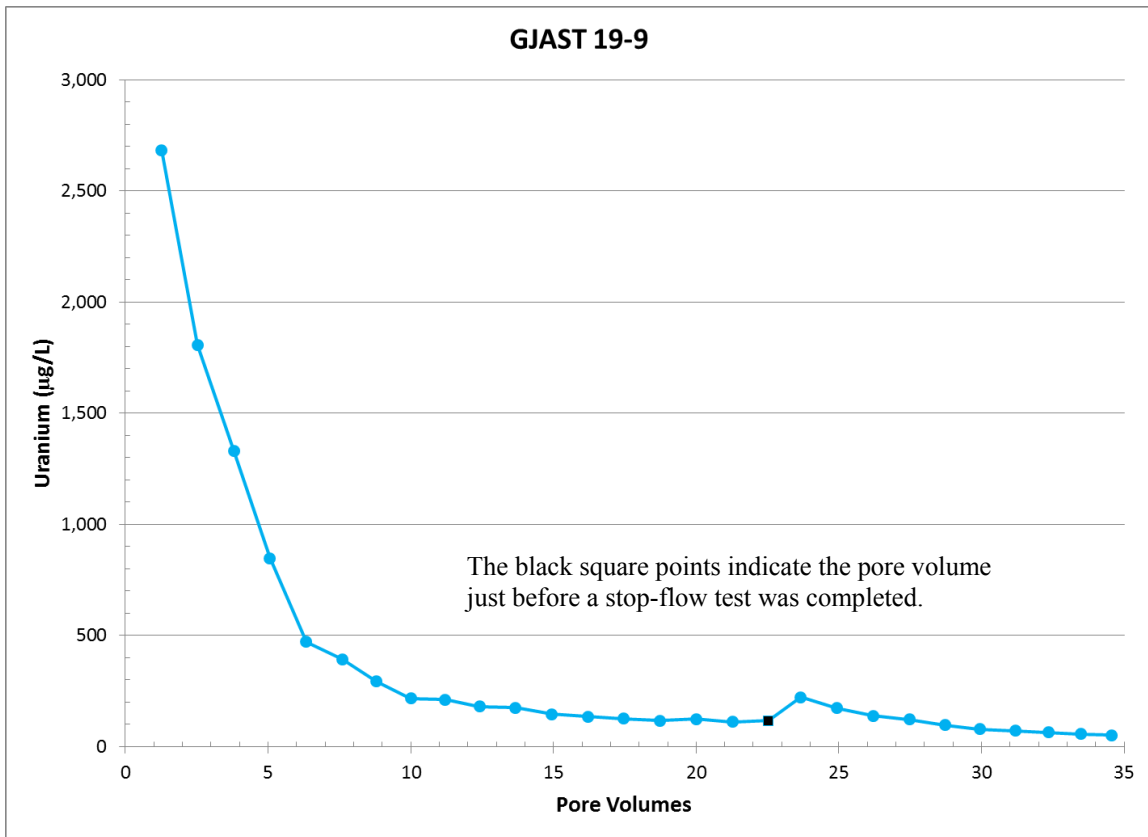
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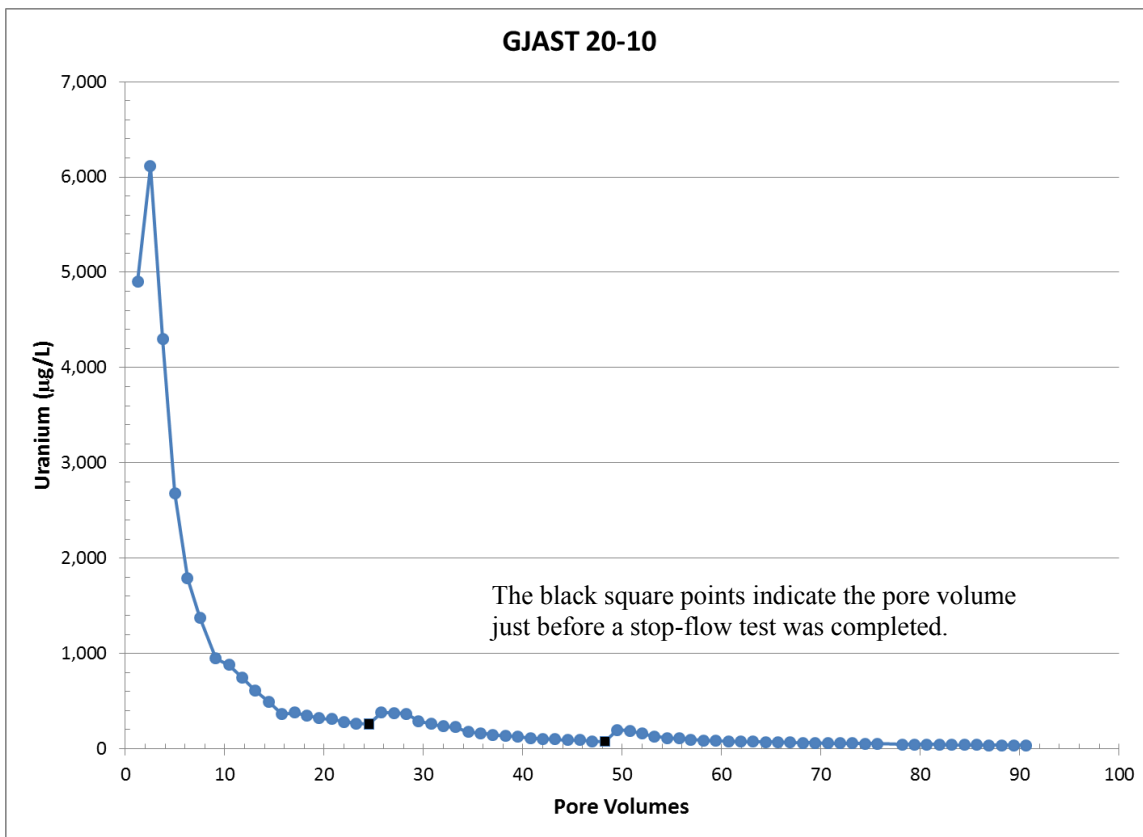
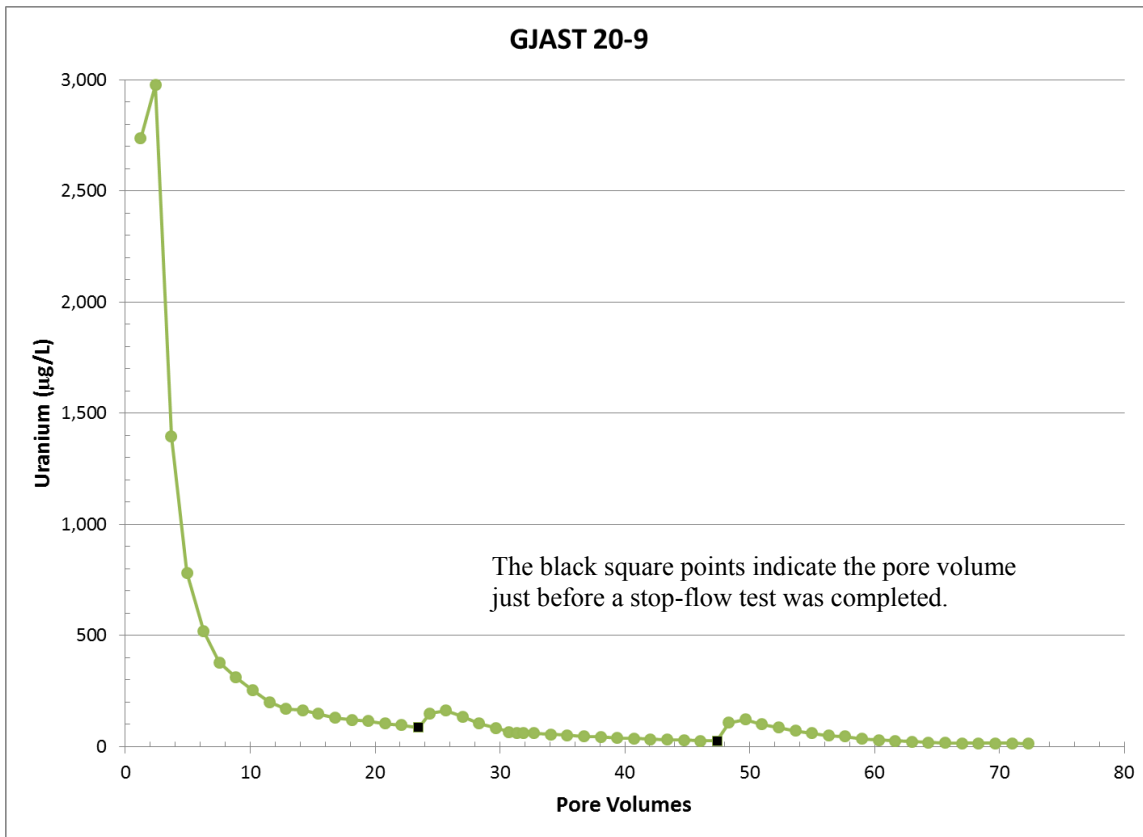


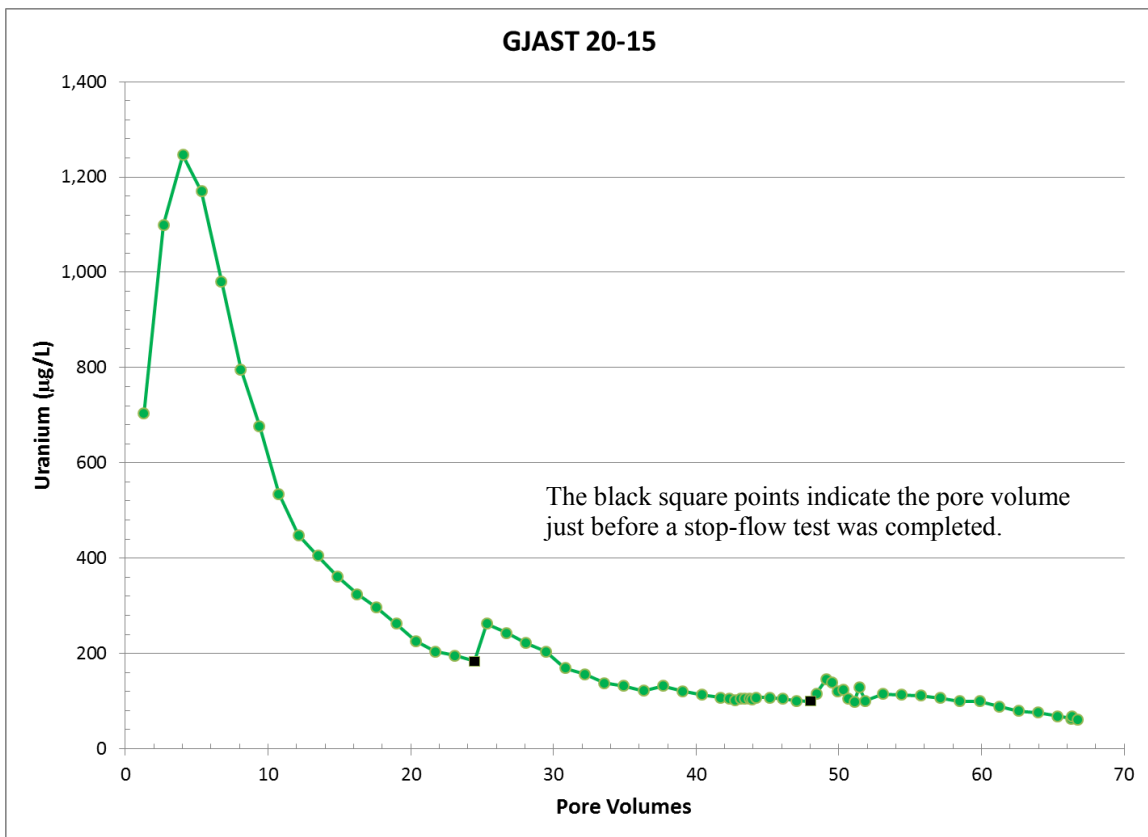
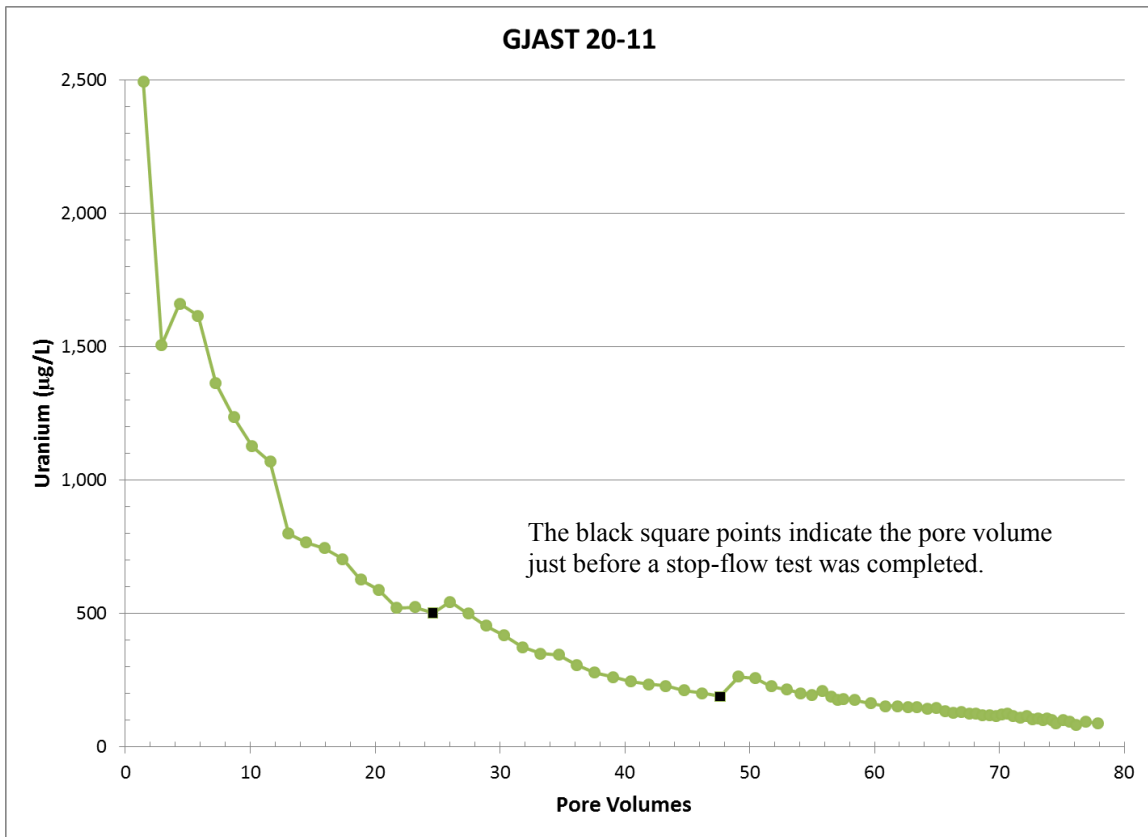








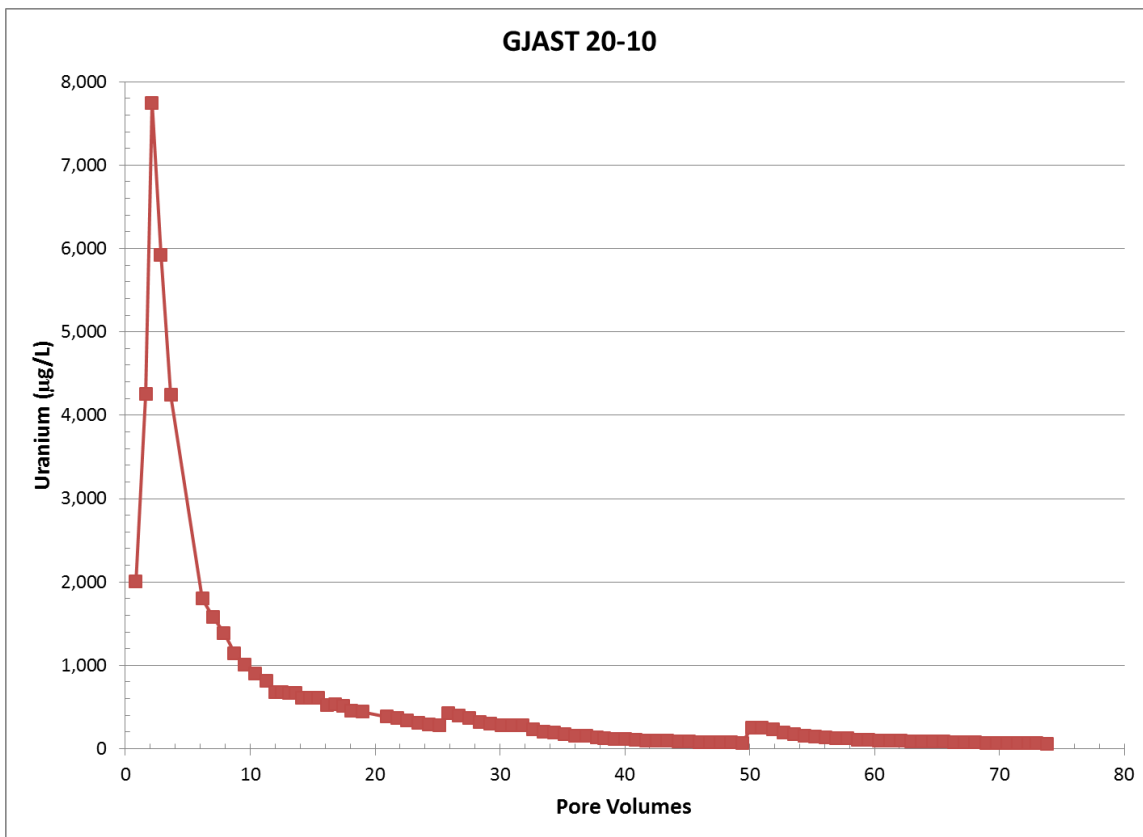
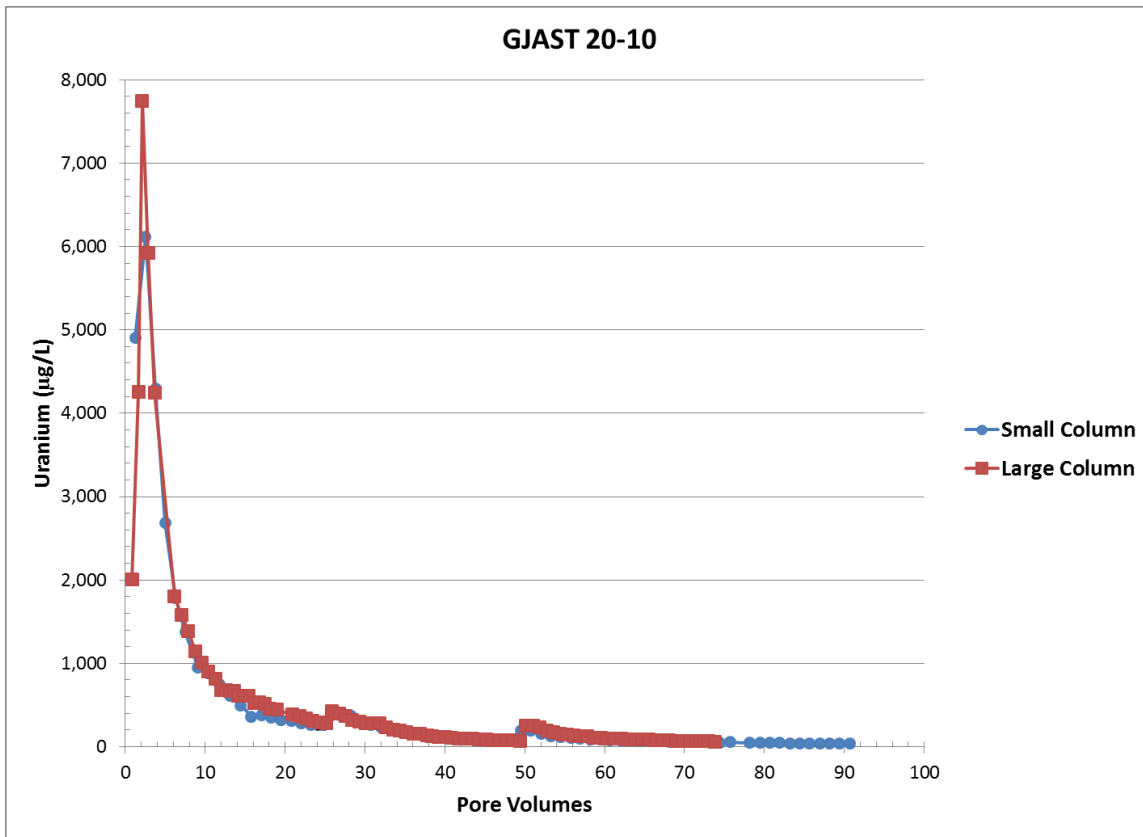


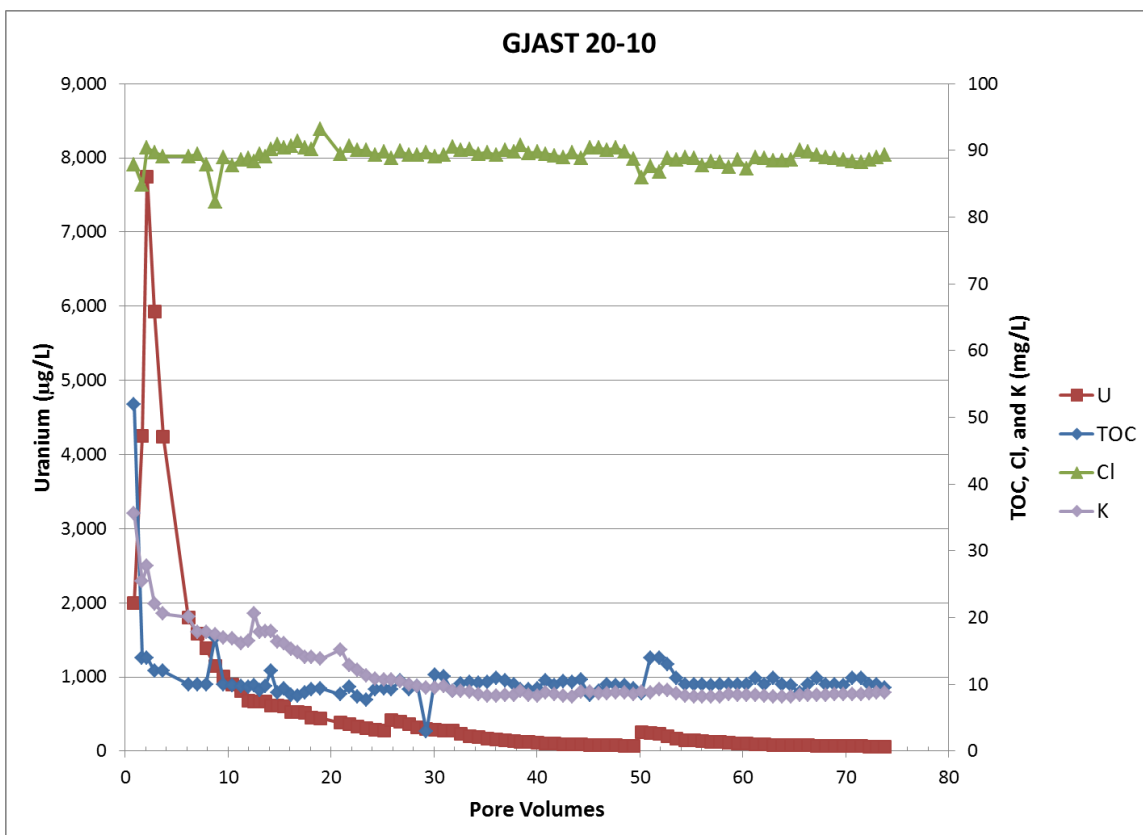
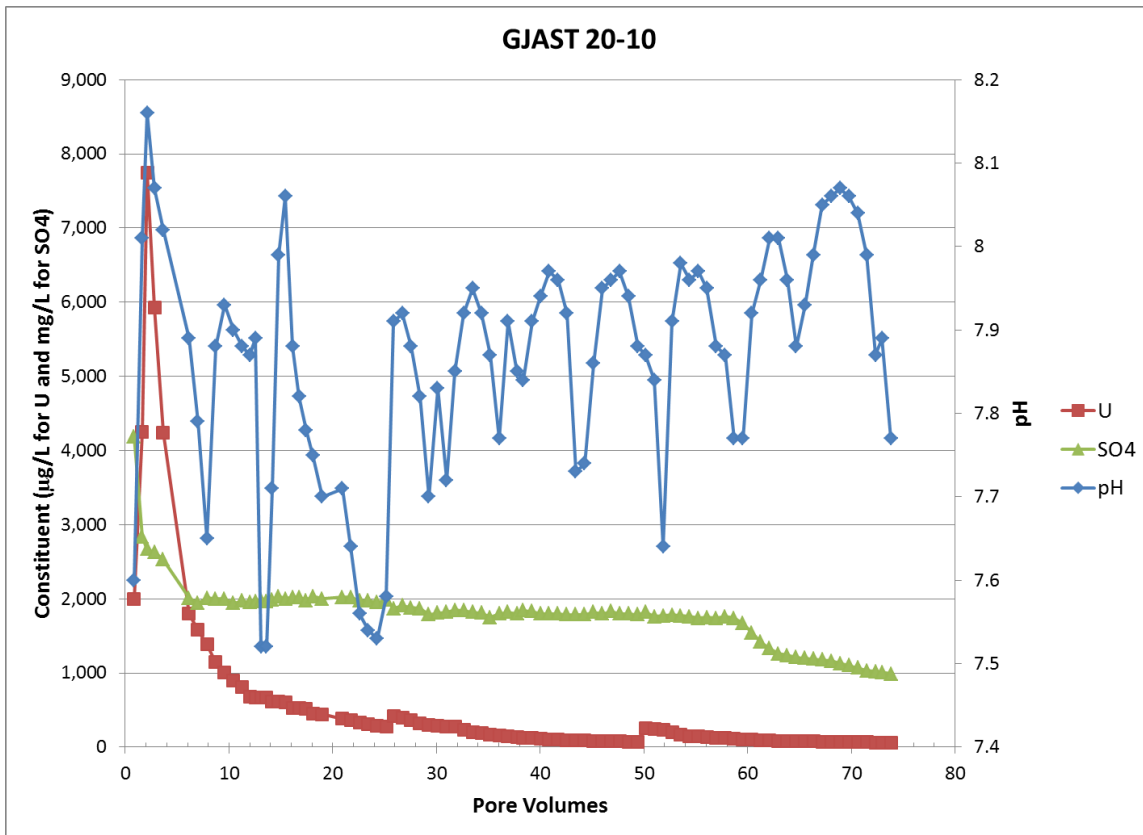


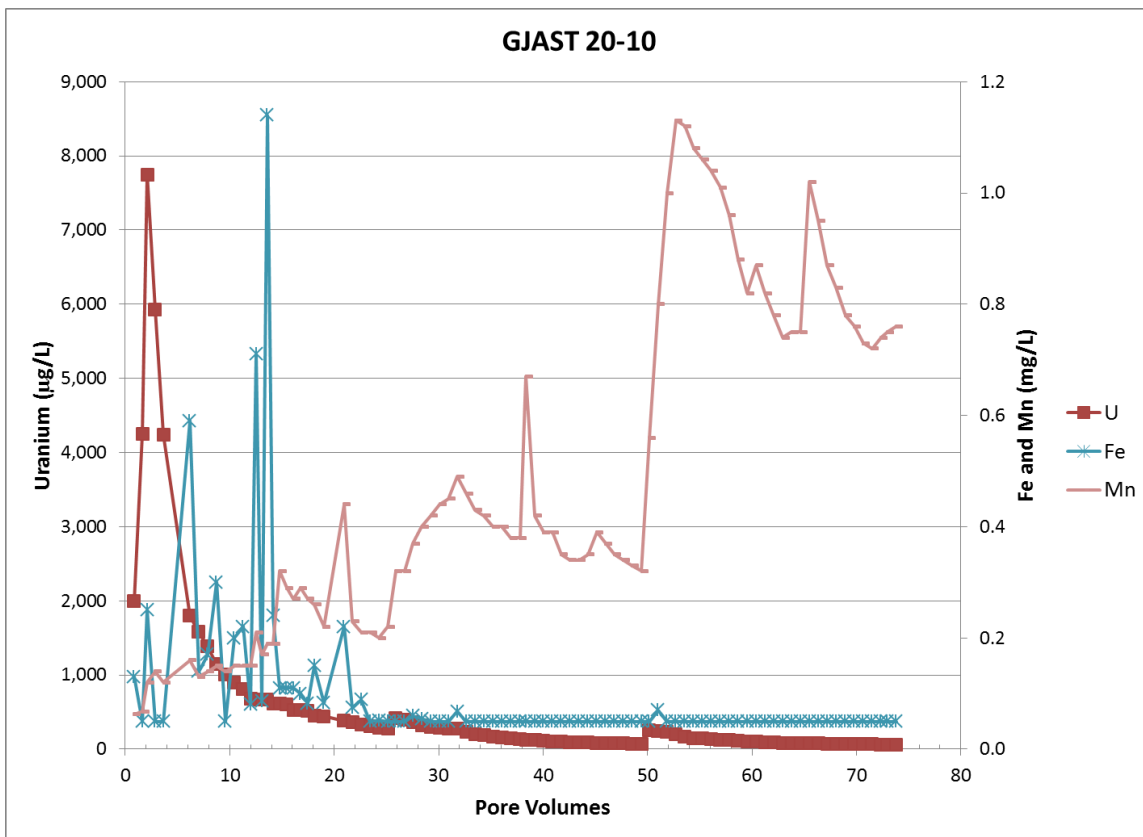
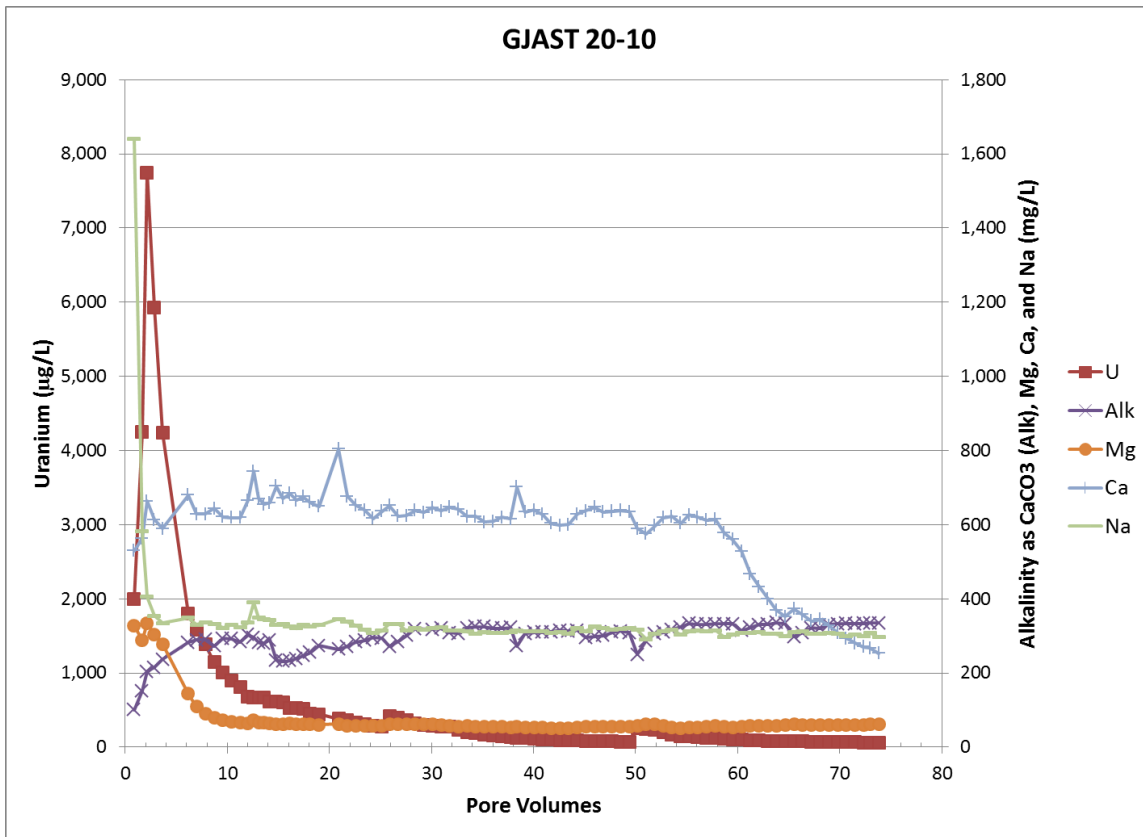
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**Figures for
Column Test Data
GJAST 20-10 Large Column**

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Appendix E

Fission Track Radiography Compared with Thin Section Petrography

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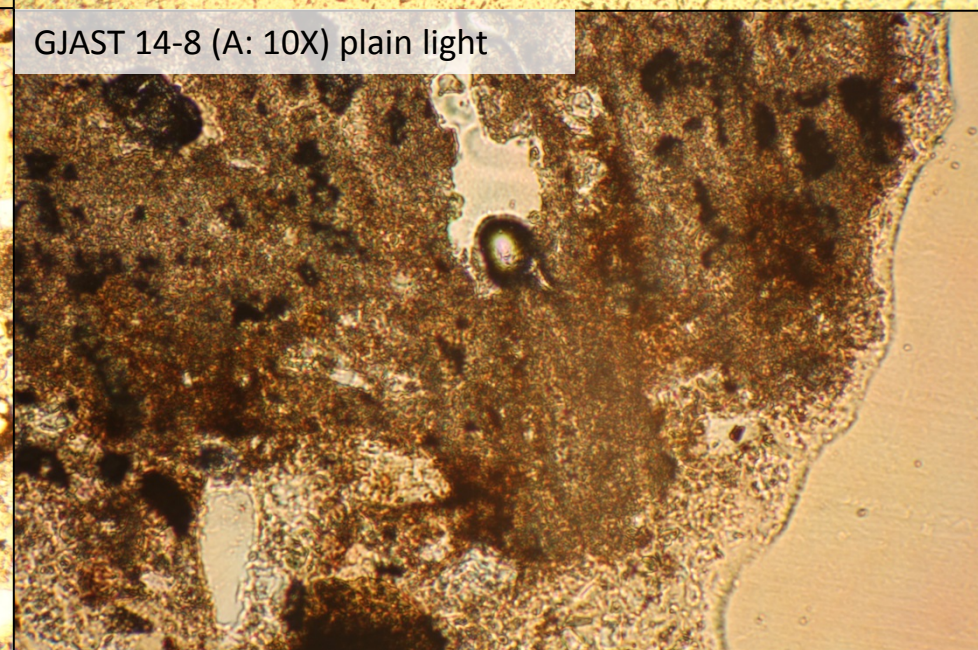
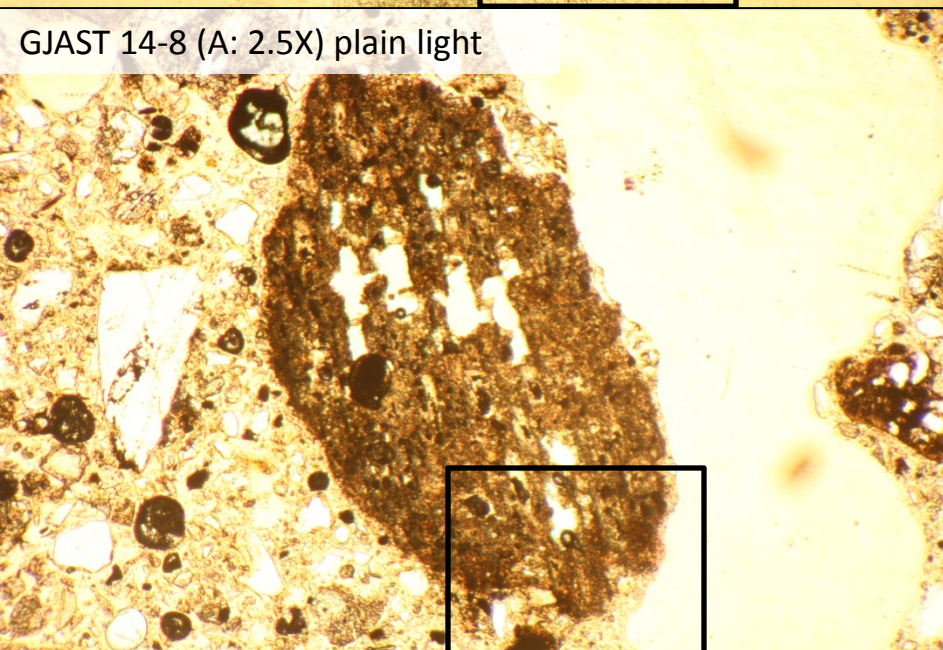
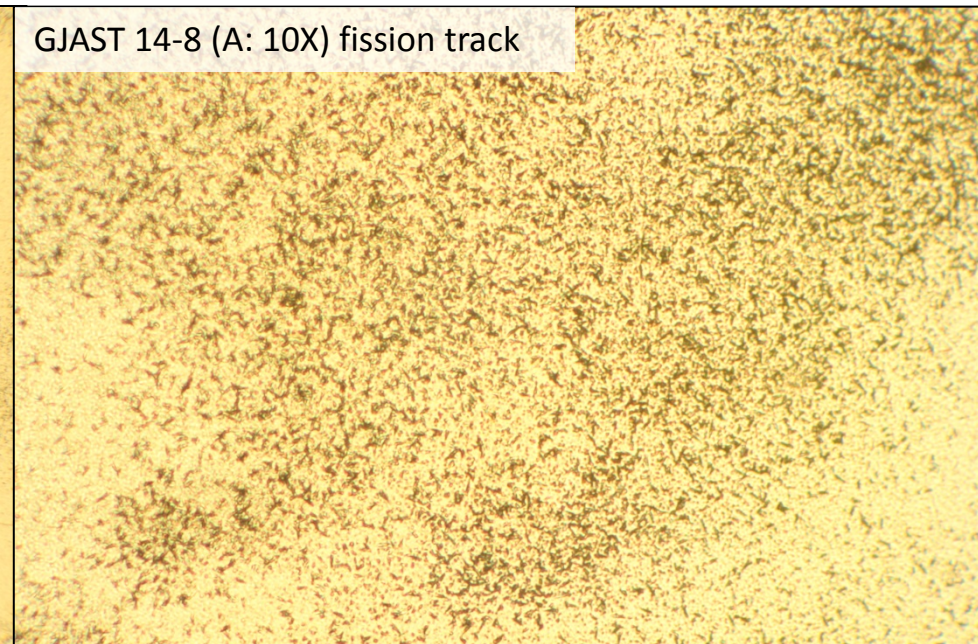
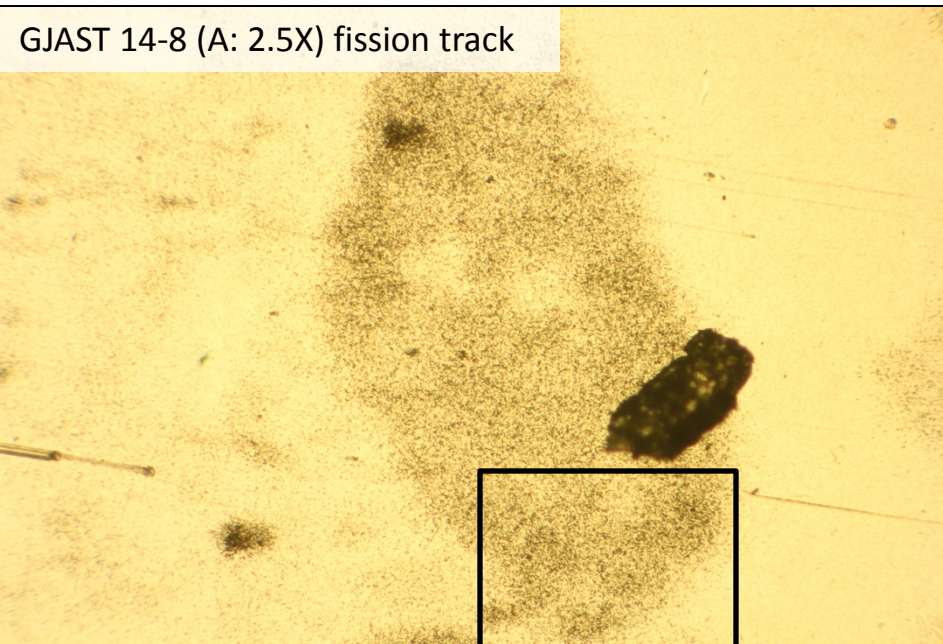
Fission Track Radiography Compared with Thin Section Petrography

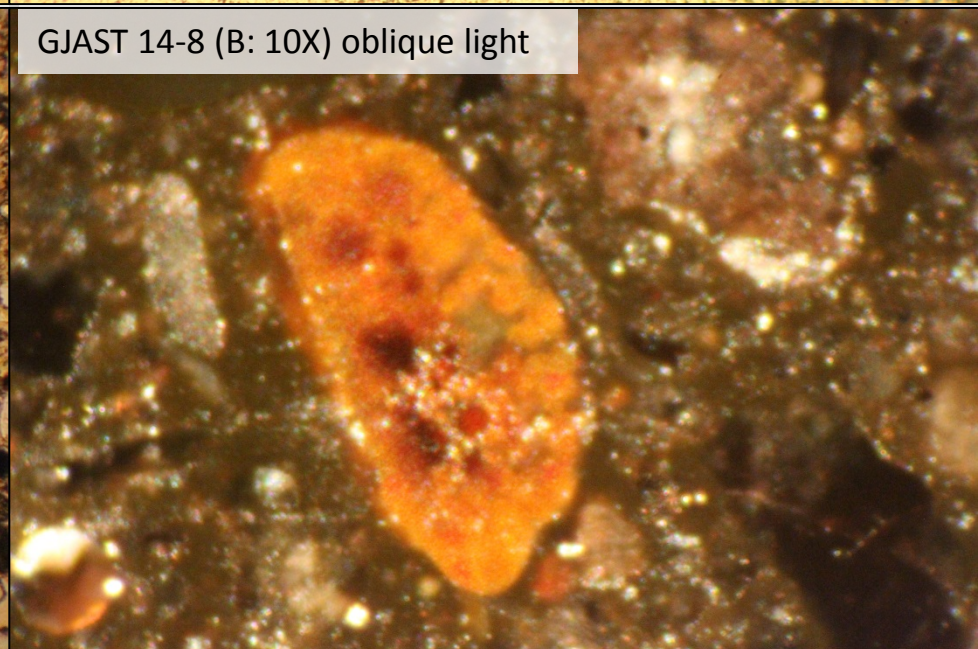
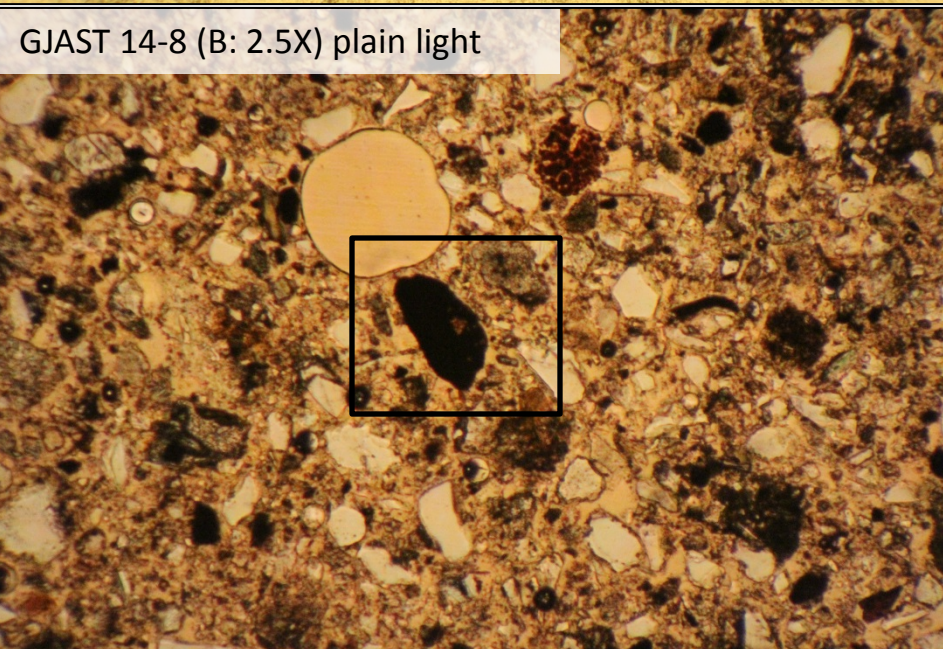
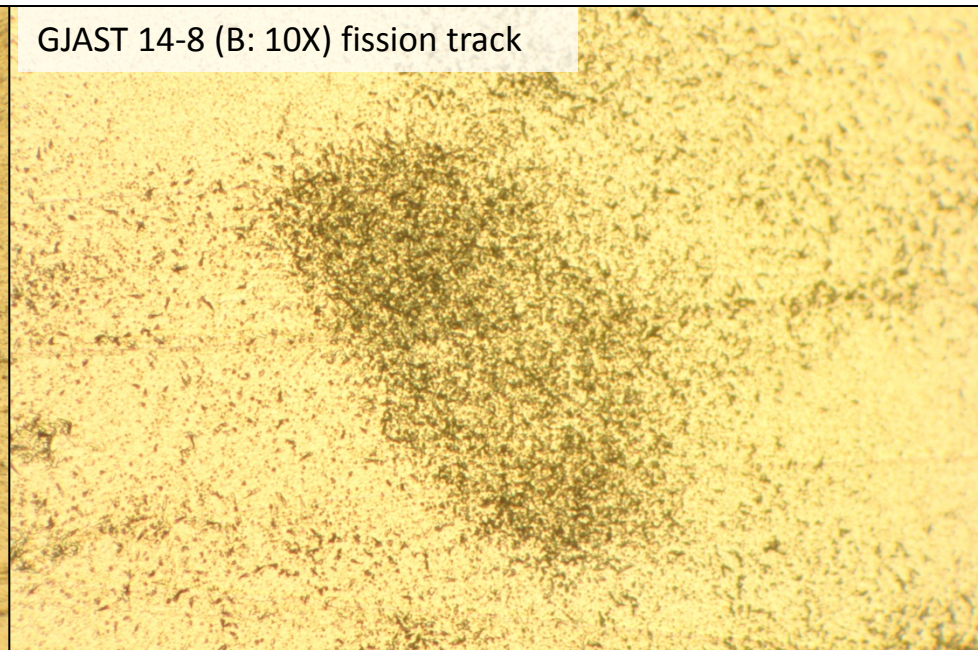
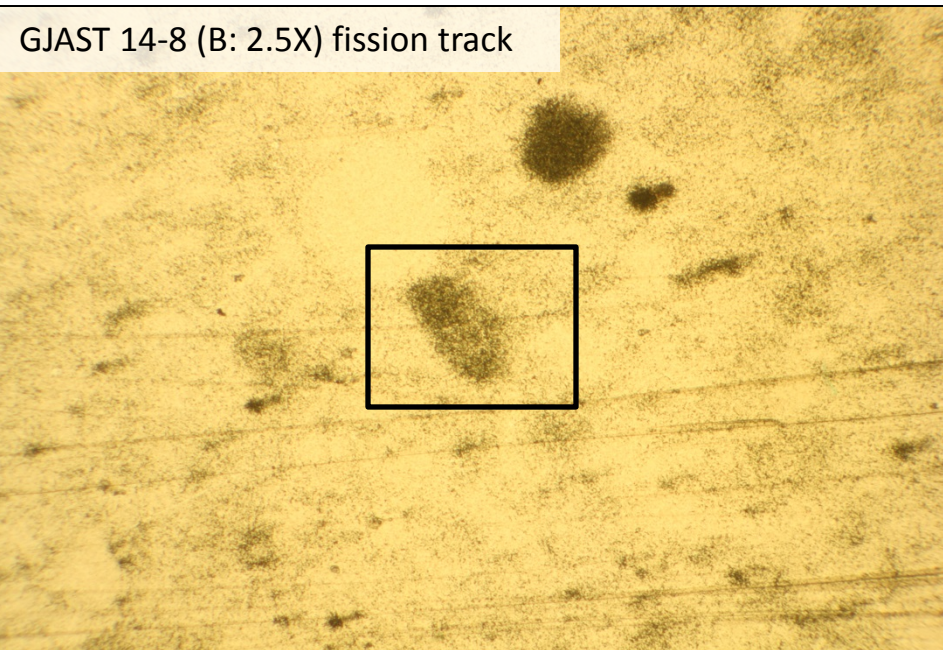
Labeling example: GJAST 14-8 (A: 2.5X) fission track

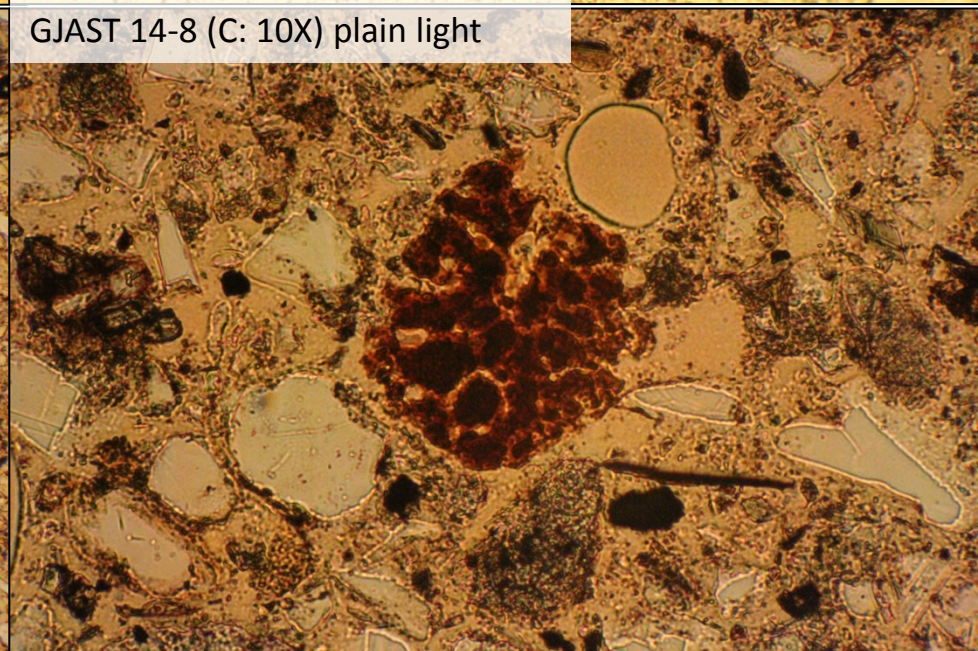
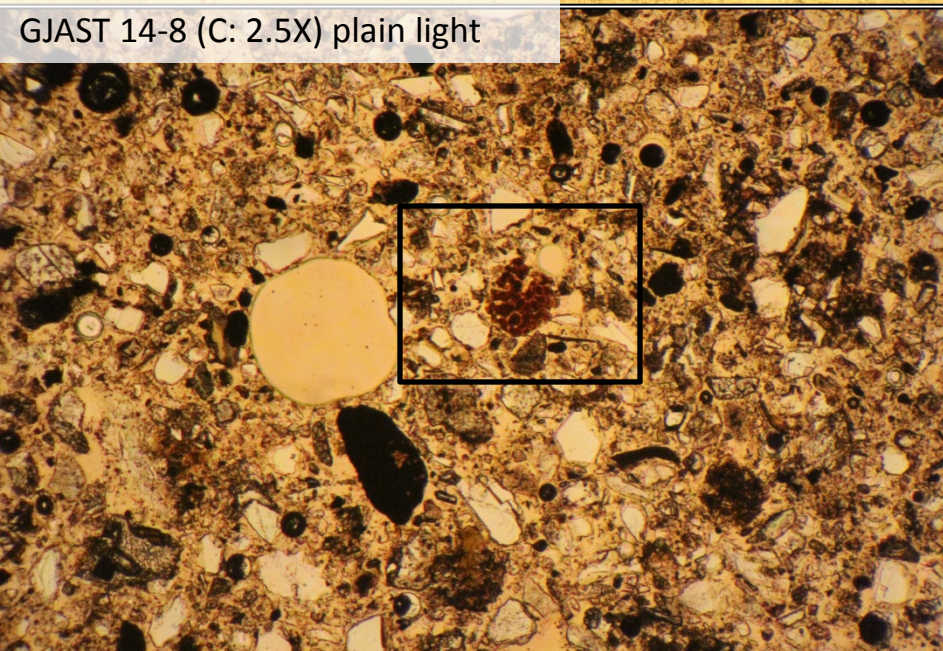
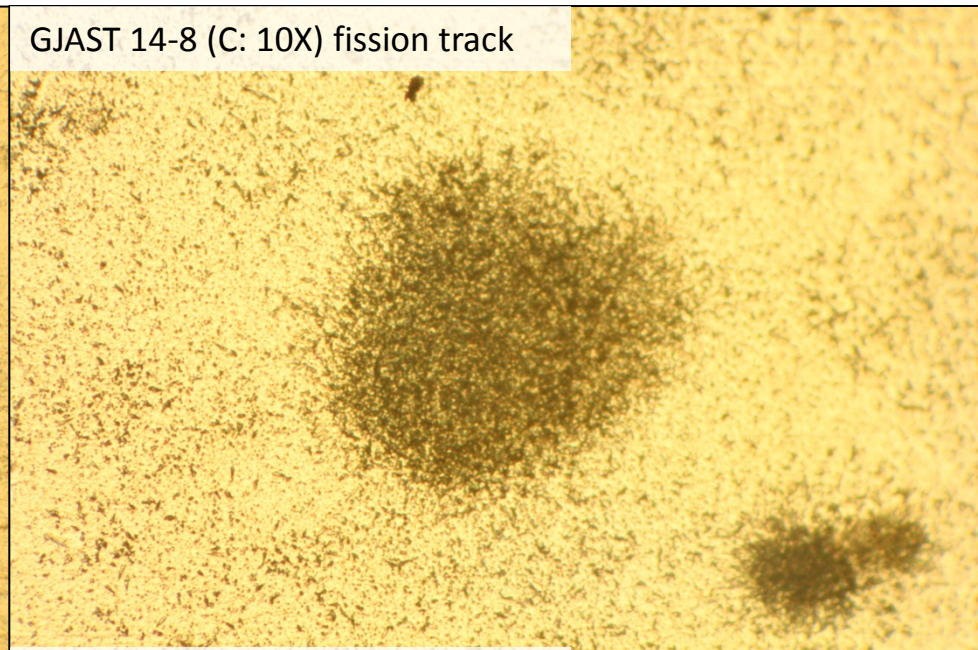
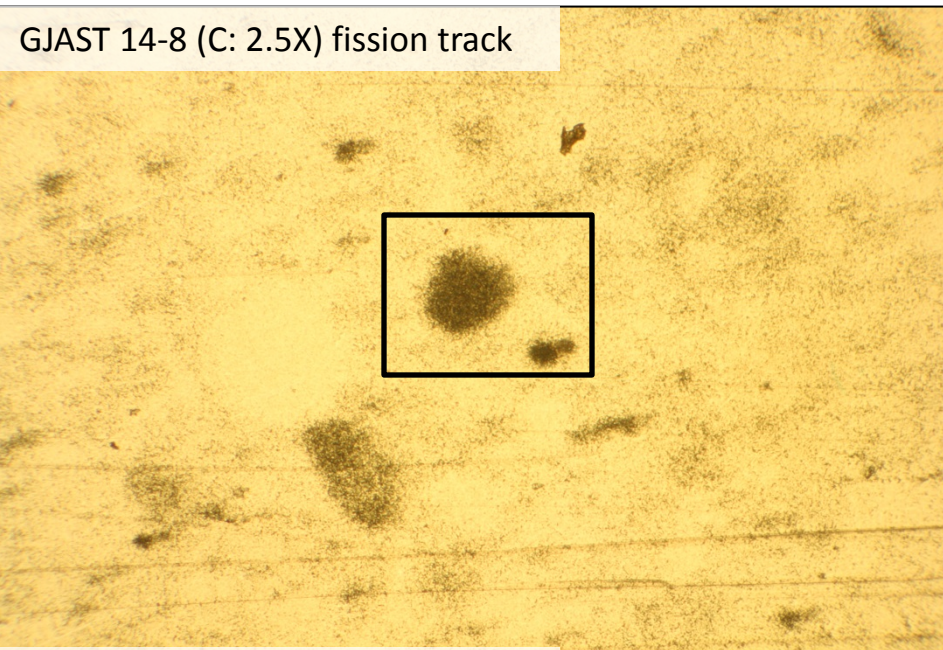
Labeling example: sample ID (point number, magnification) image technique

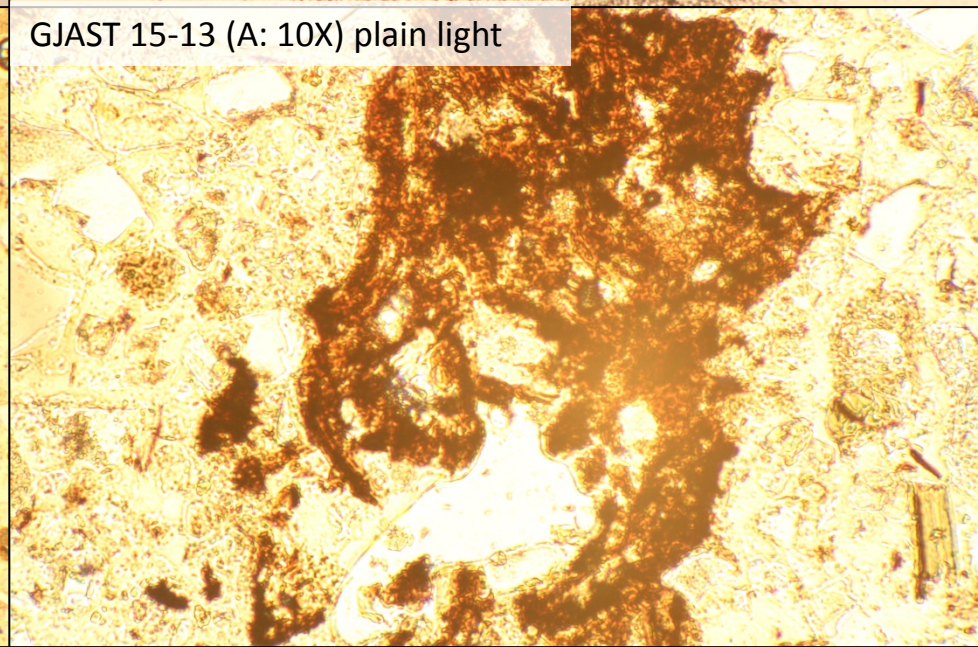
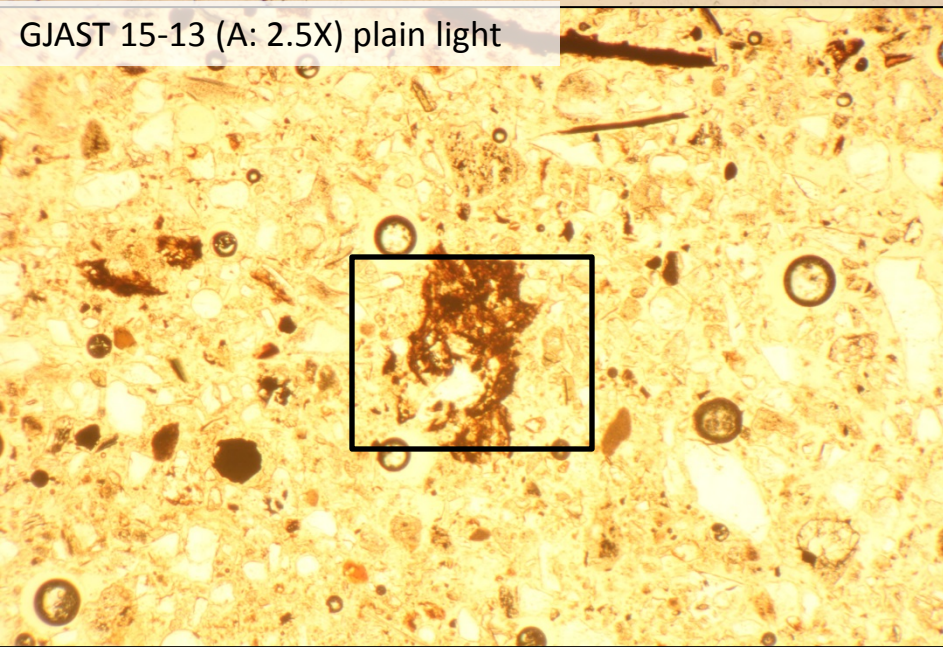
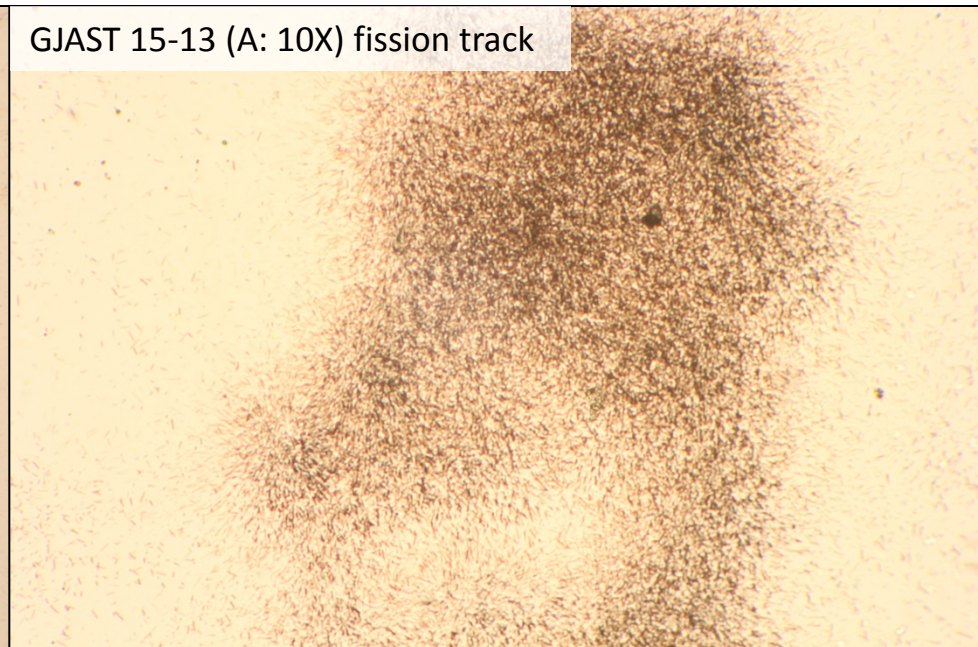
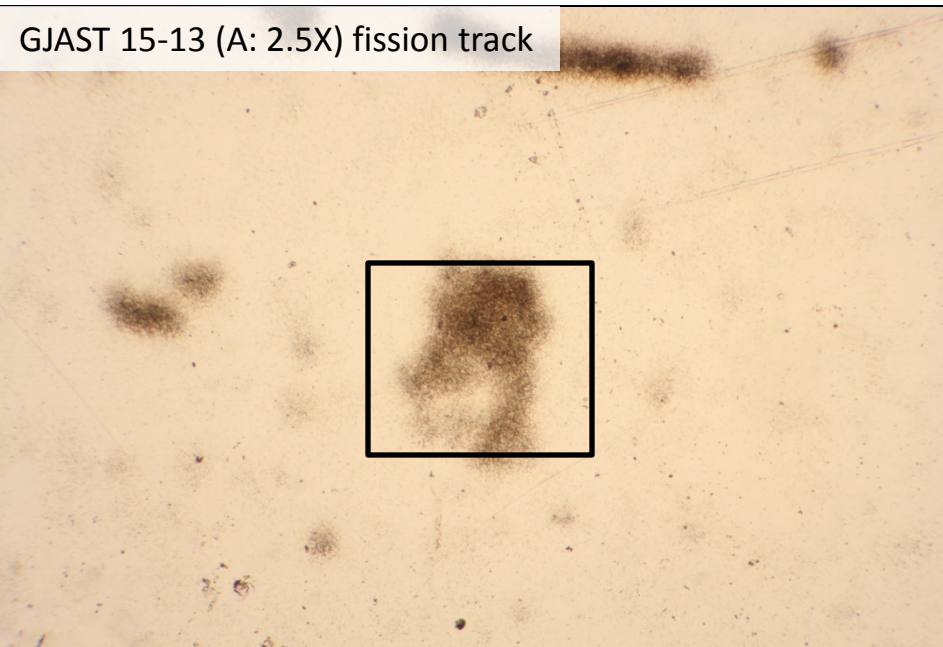


zoomed in area when appropriate, next image is the sample point number with a different magnification

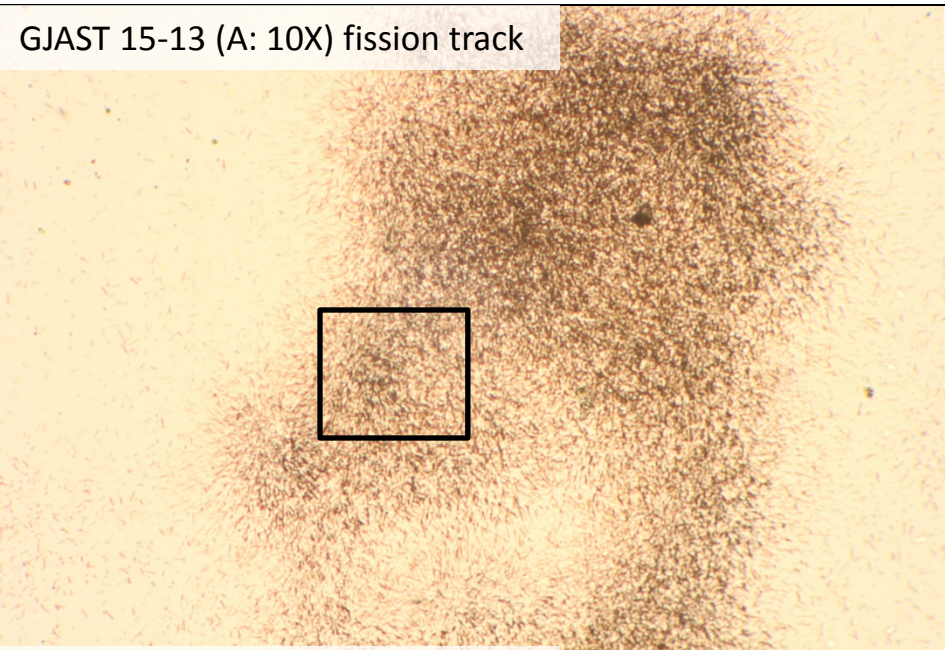




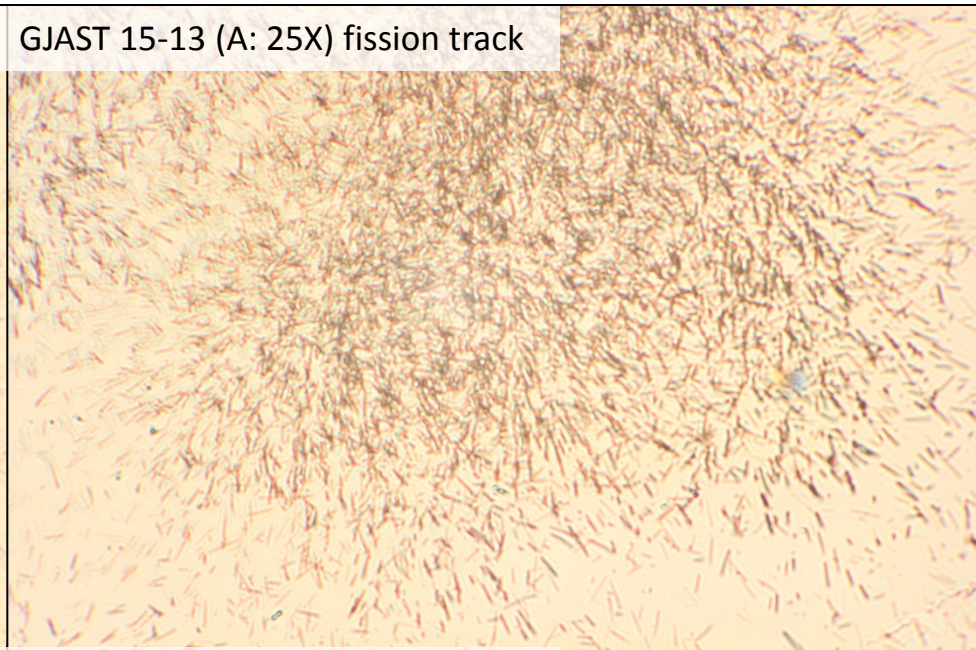




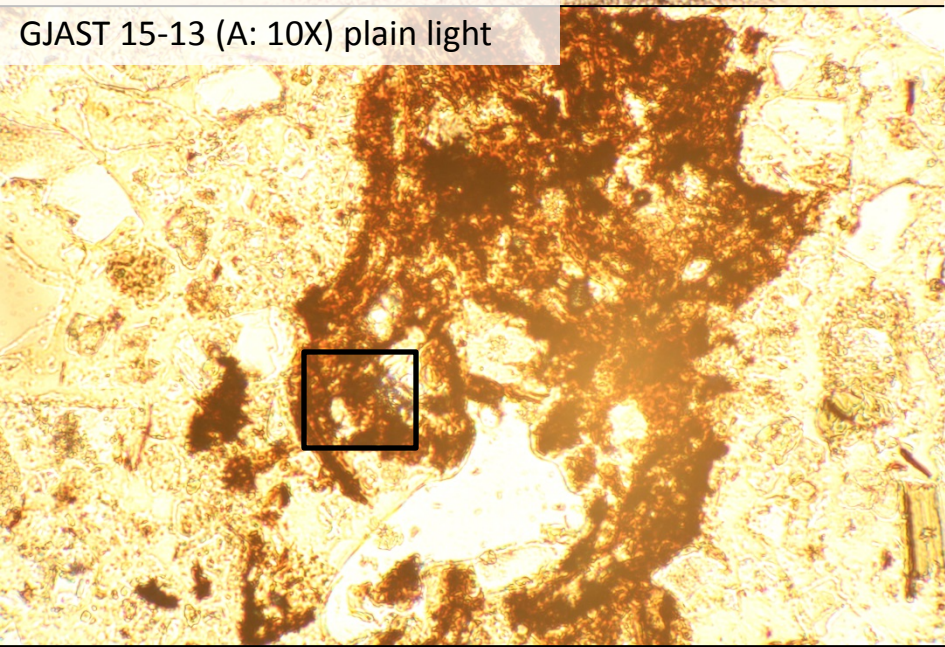
GJAST 15-13 (A: 10X) fission track



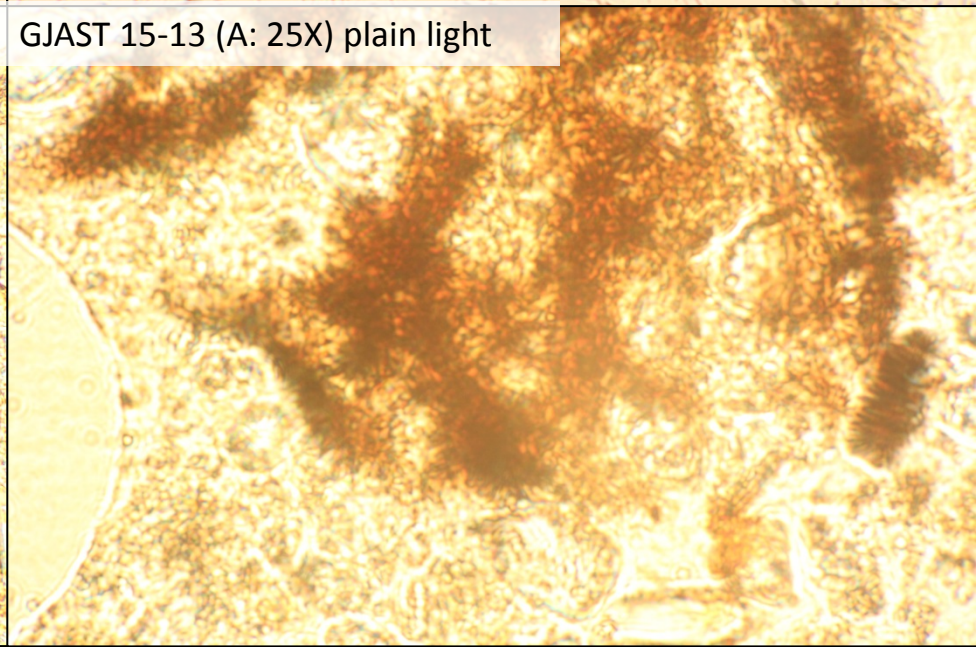
GJAST 15-13 (A: 25X) fission track



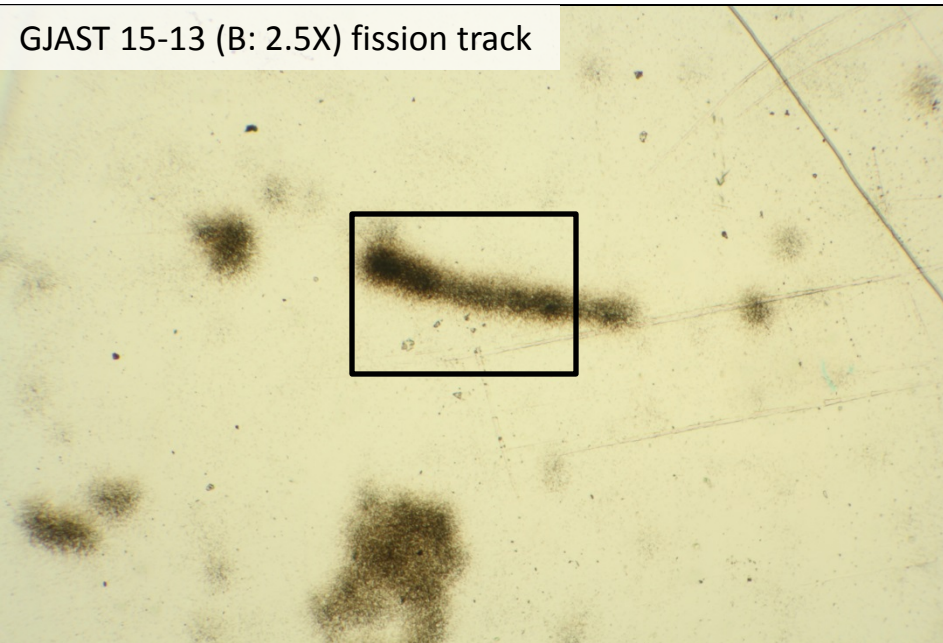
GJAST 15-13 (A: 10X) plain light



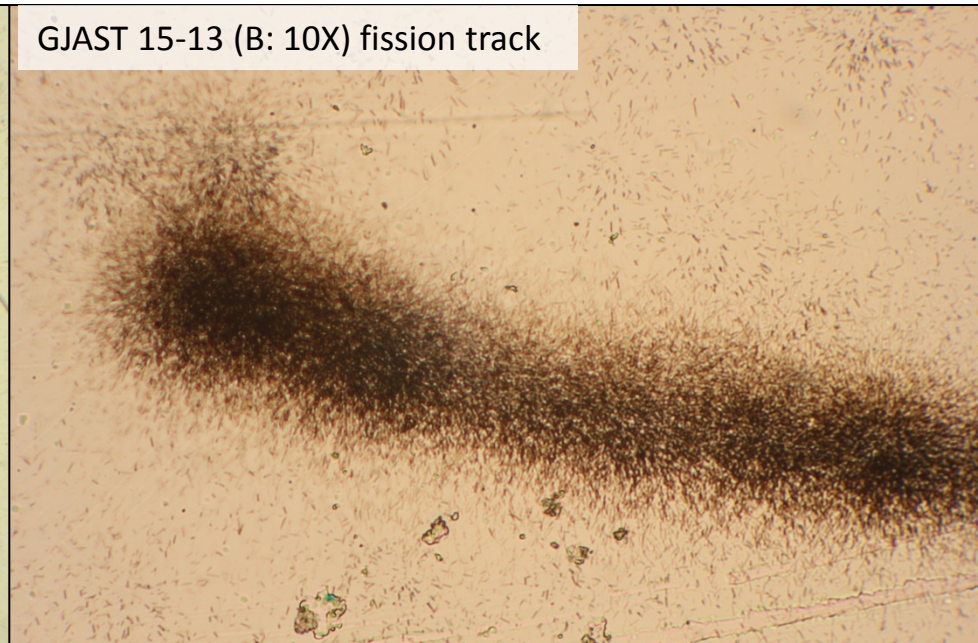
GJAST 15-13 (A: 25X) plain light



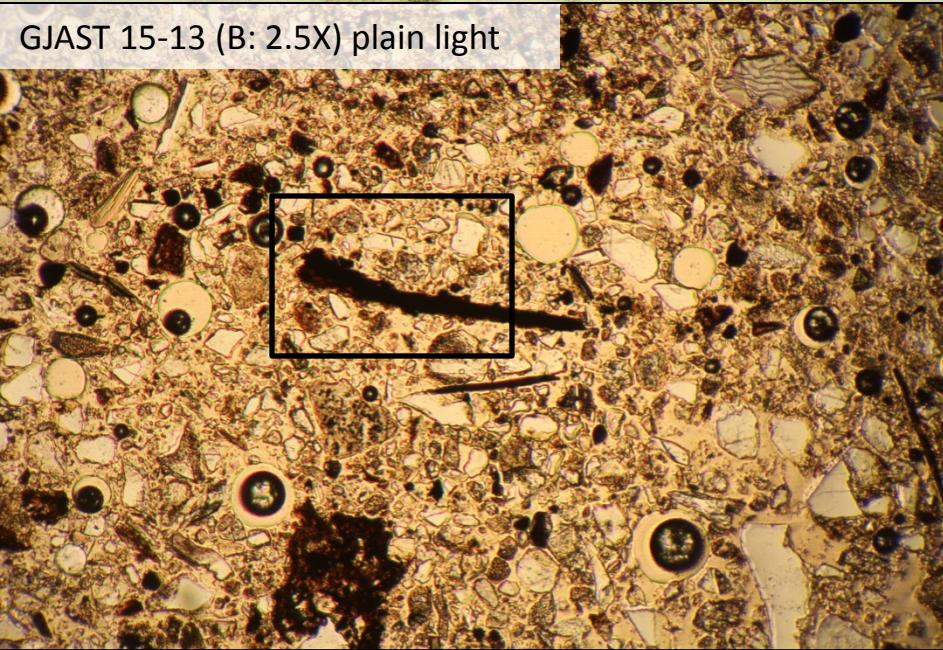
GJAST 15-13 (B: 2.5X) fission track



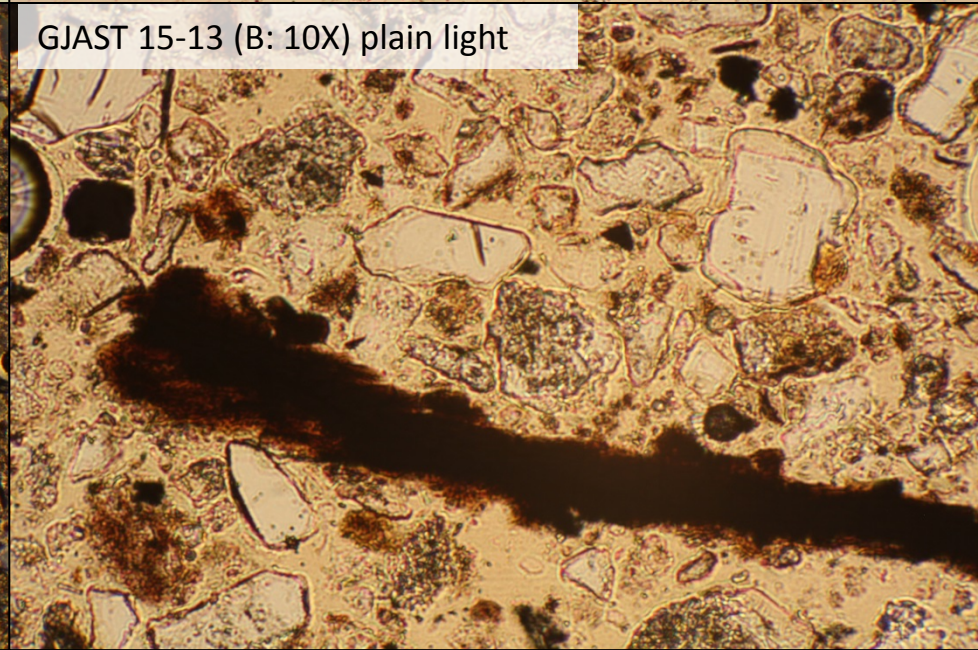
GJAST 15-13 (B: 10X) fission track



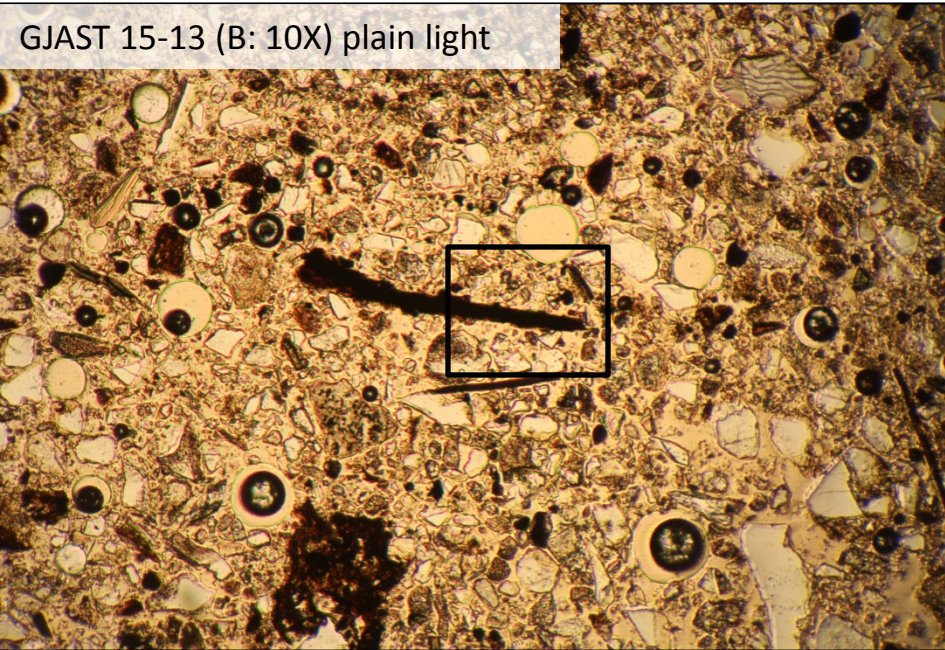
GJAST 15-13 (B: 2.5X) plain light



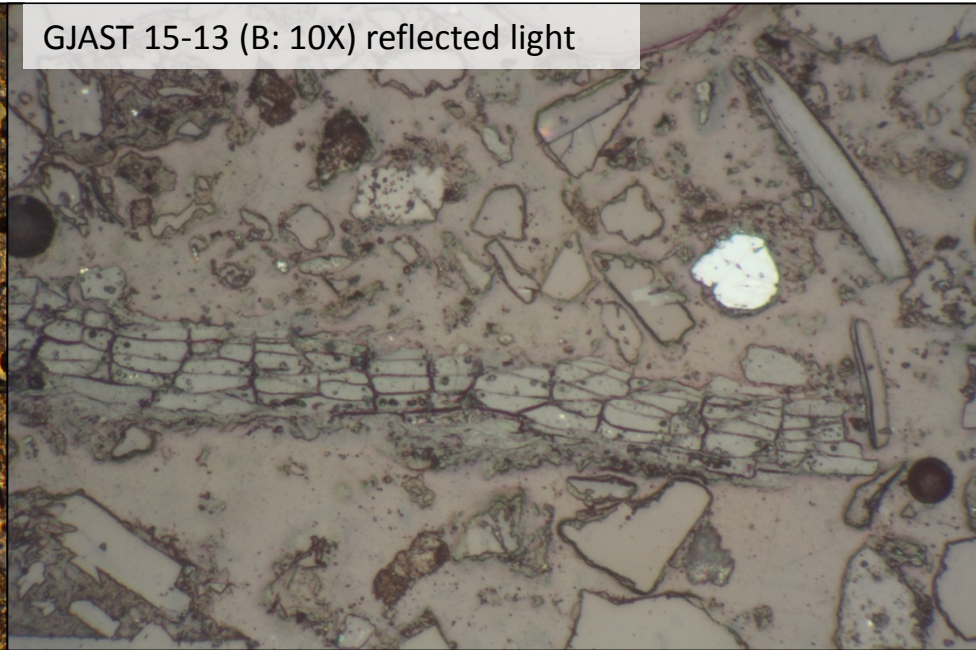
GJAST 15-13 (B: 10X) plain light



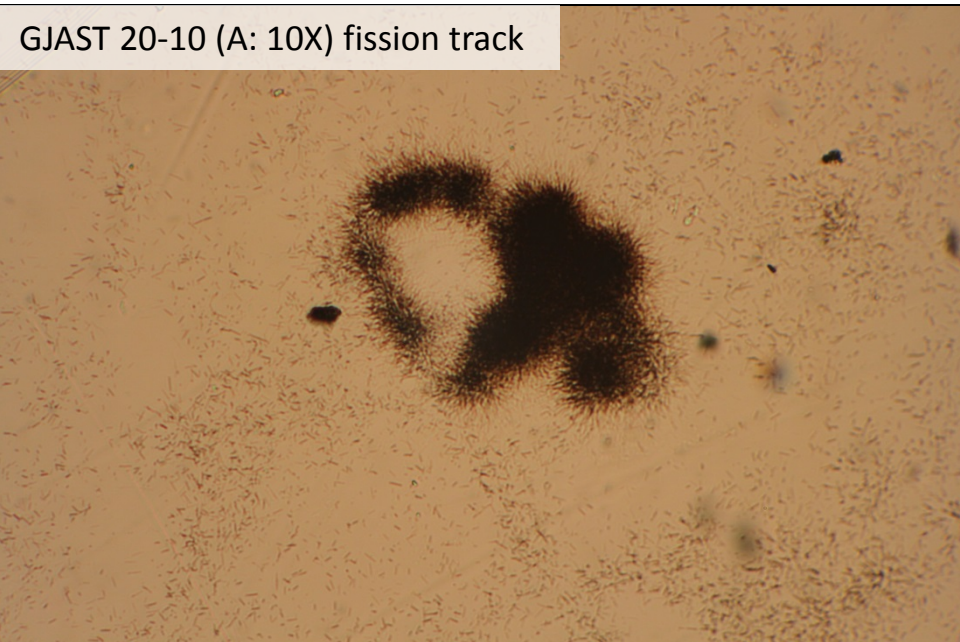
GJAST 15-13 (B: 10X) plain light



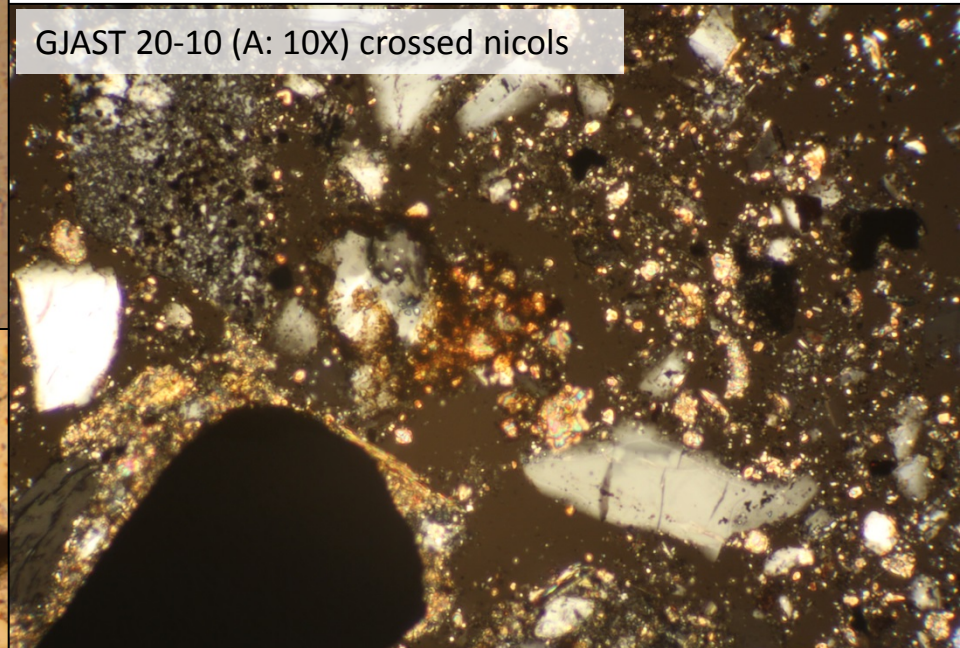
GJAST 15-13 (B: 10X) reflected light



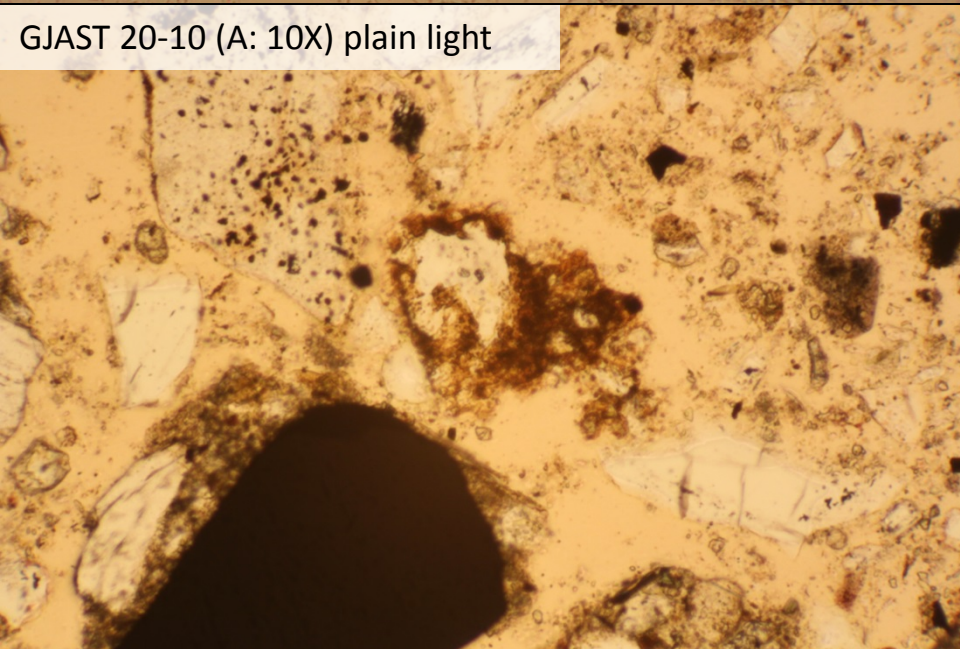
GJAST 20-10 (A: 10X) fission track

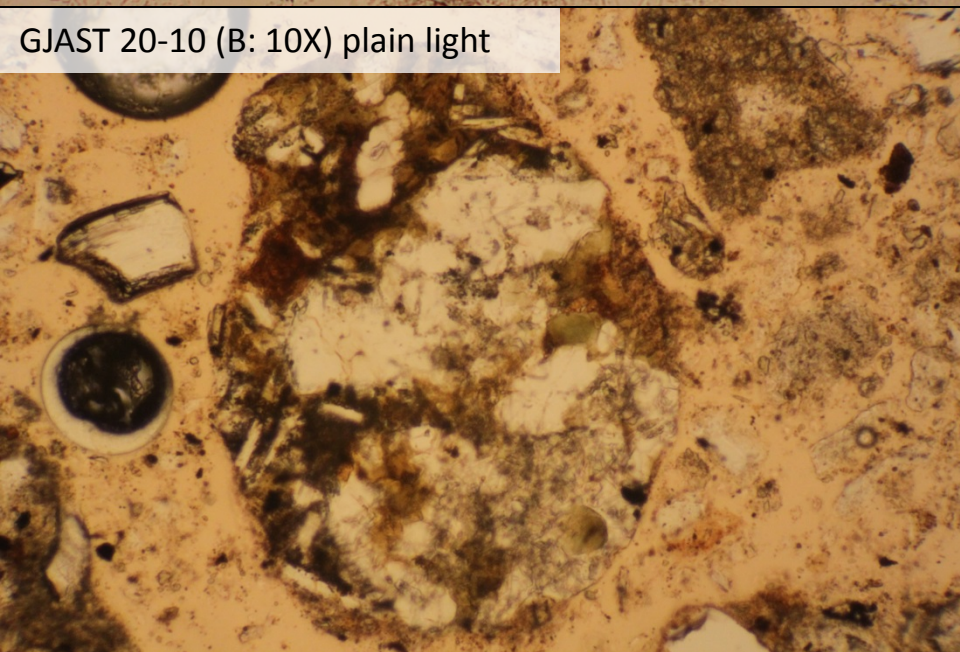
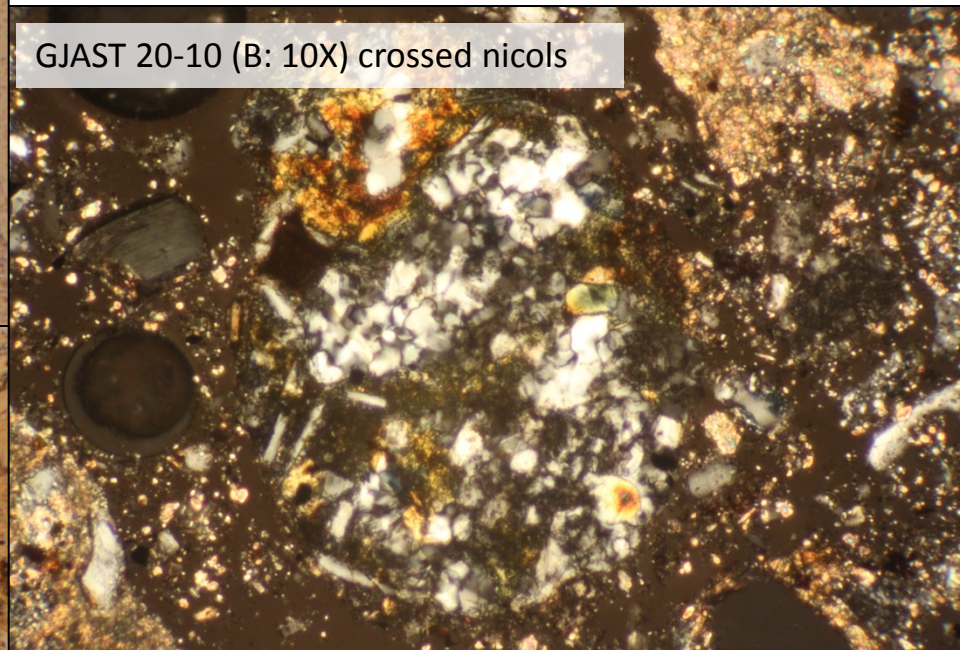
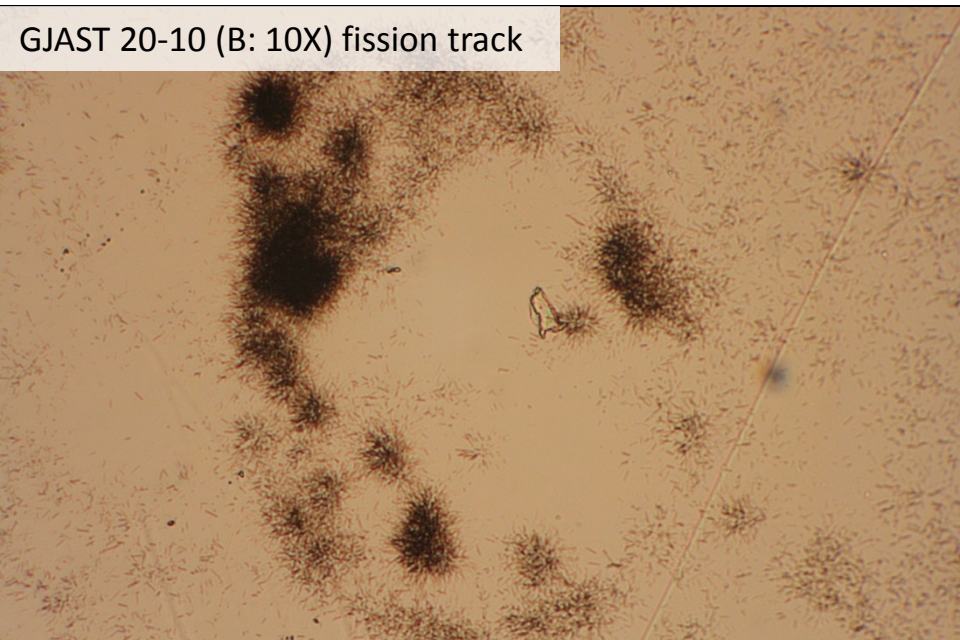


GJAST 20-10 (A: 10X) crossed nicols

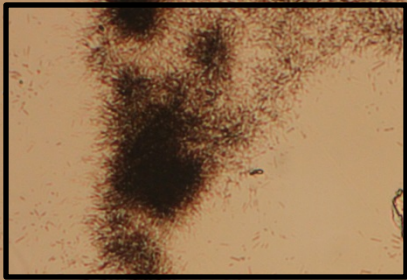


GJAST 20-10 (A: 10X) plain light

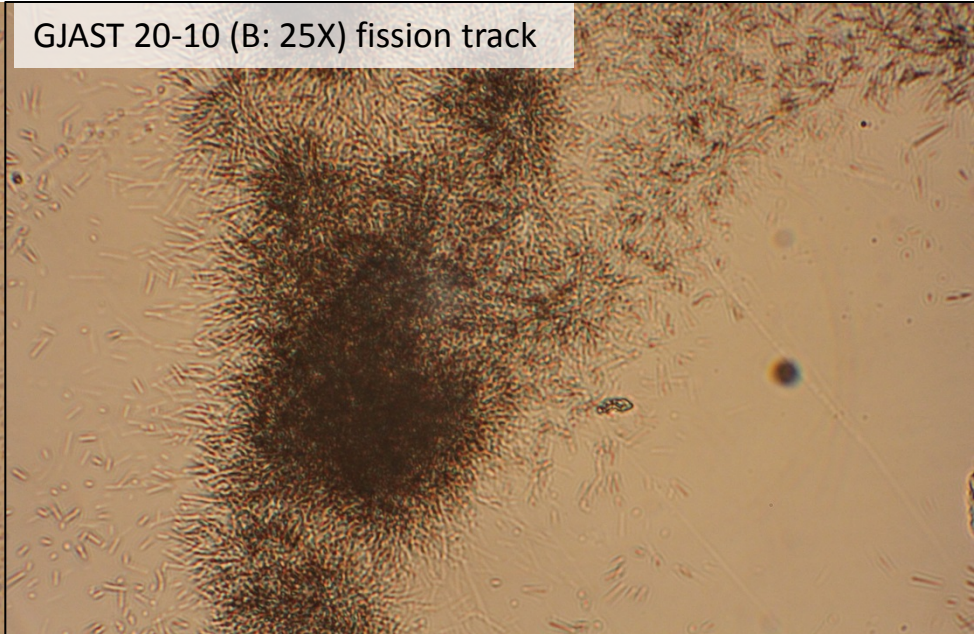




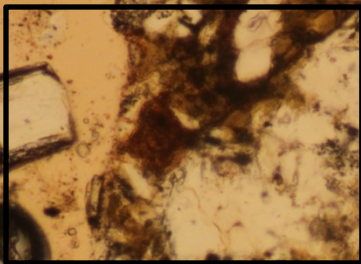
GJAST 20-10 (B: 10X) fission track



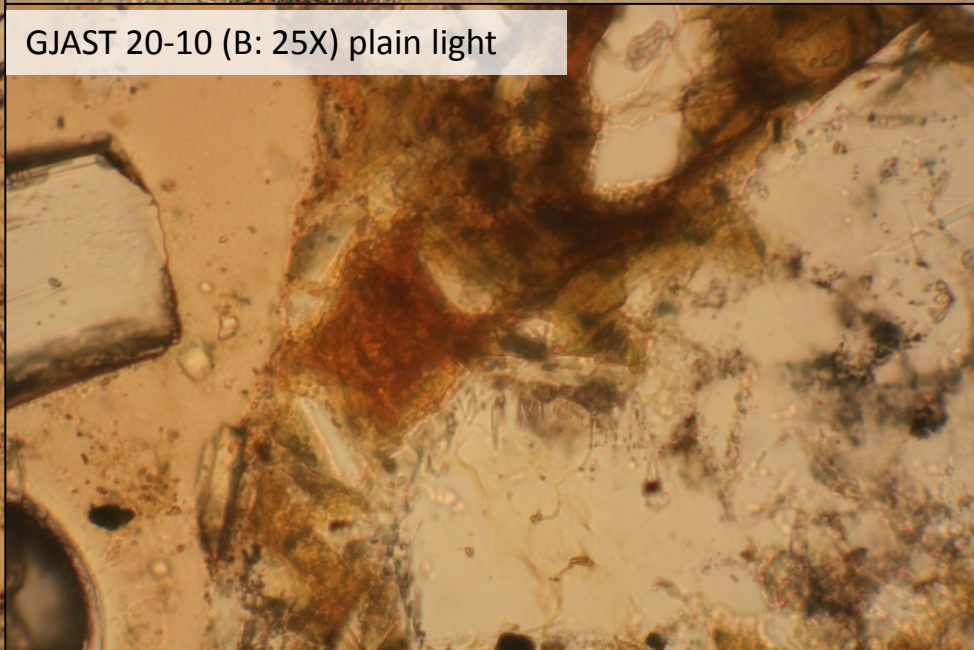
GJAST 20-10 (B: 25X) fission track



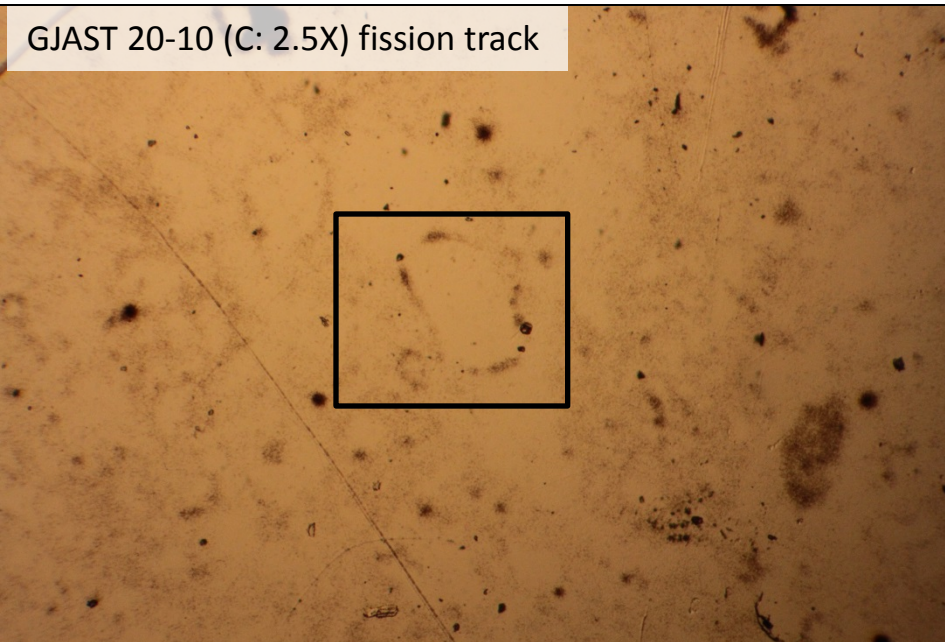
GJAST 20-10 (B: 10X) plain light



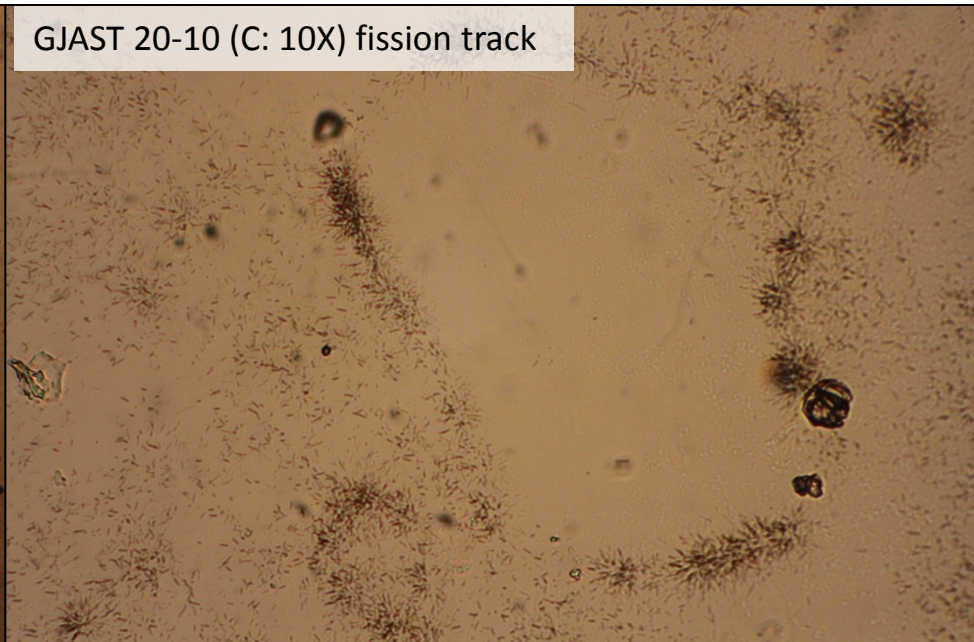
GJAST 20-10 (B: 25X) plain light



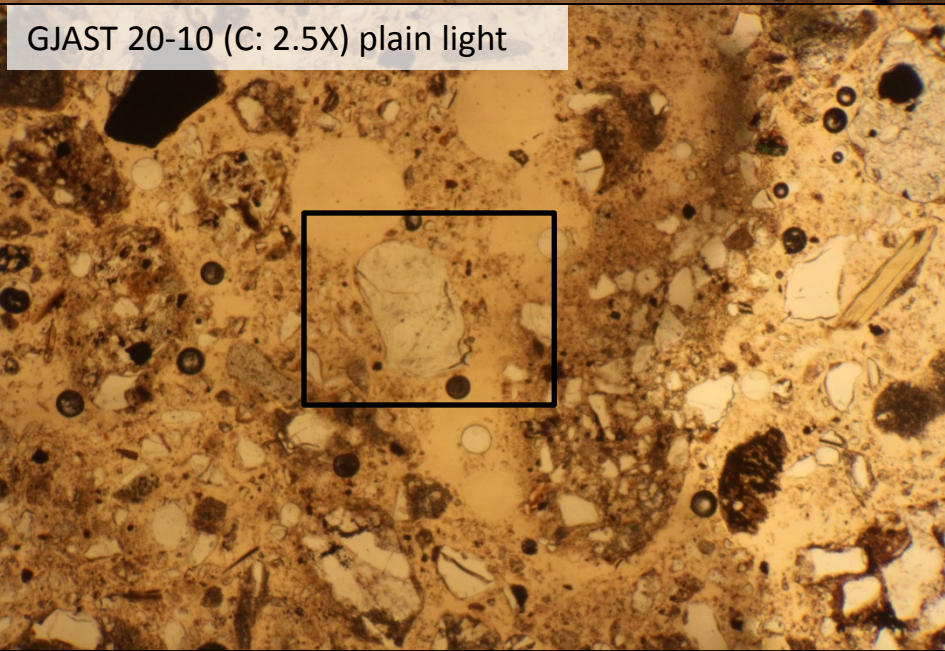
GJAST 20-10 (C: 2.5X) fission track



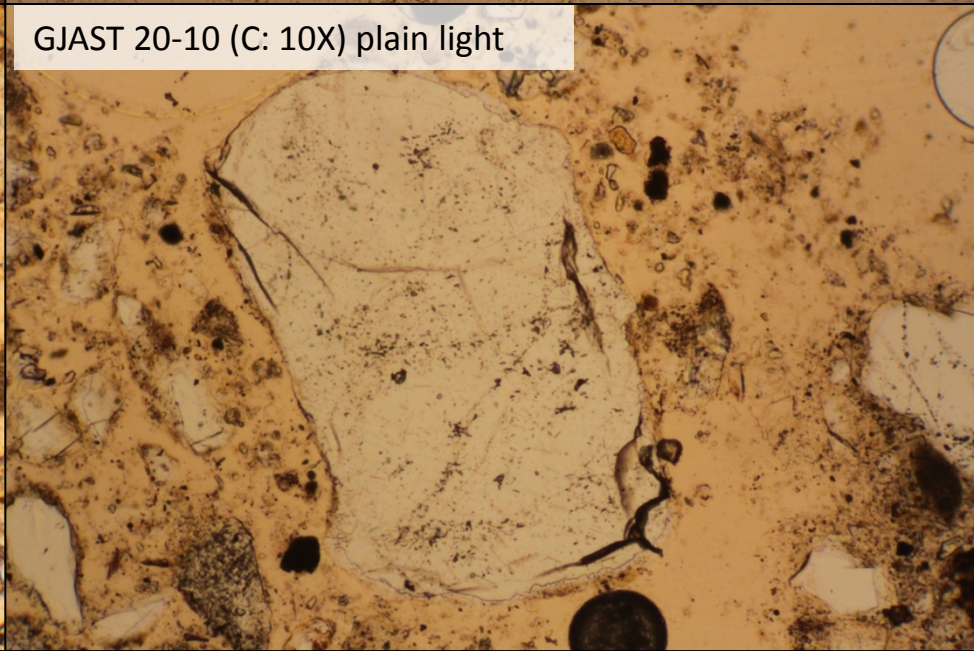
GJAST 20-10 (C: 10X) fission track



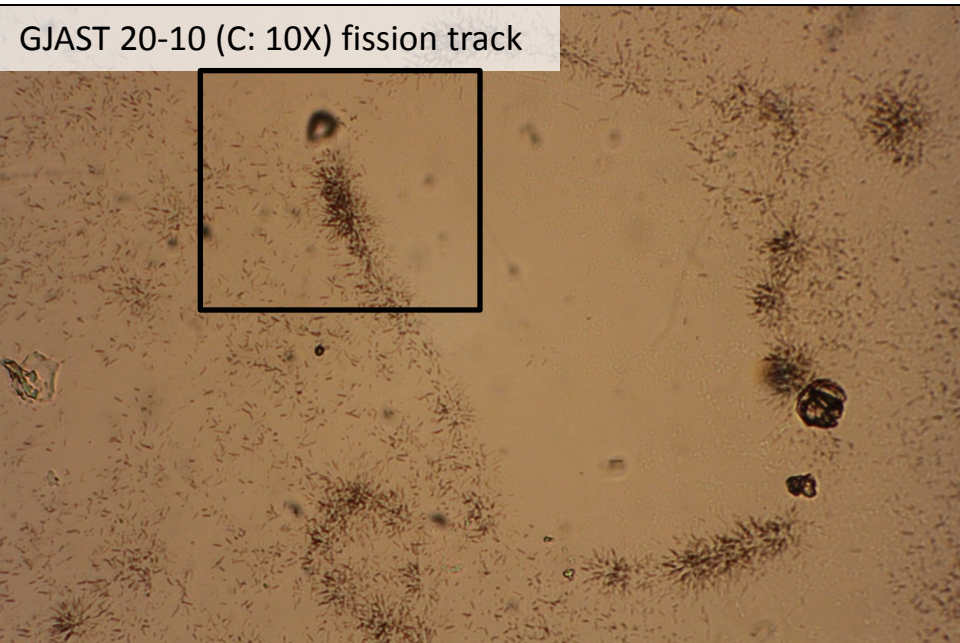
GJAST 20-10 (C: 2.5X) plain light



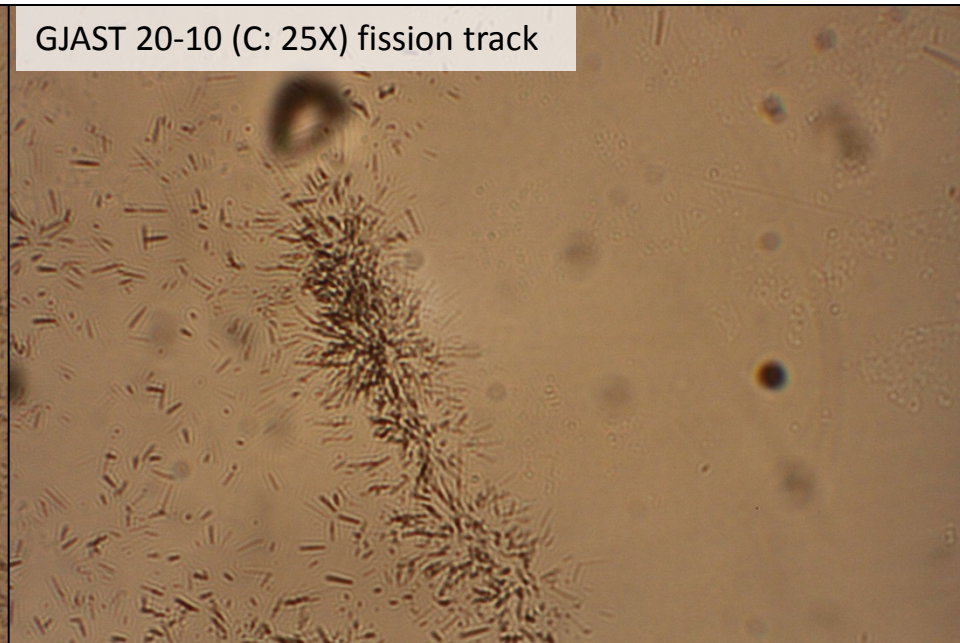
GJAST 20-10 (C: 10X) plain light



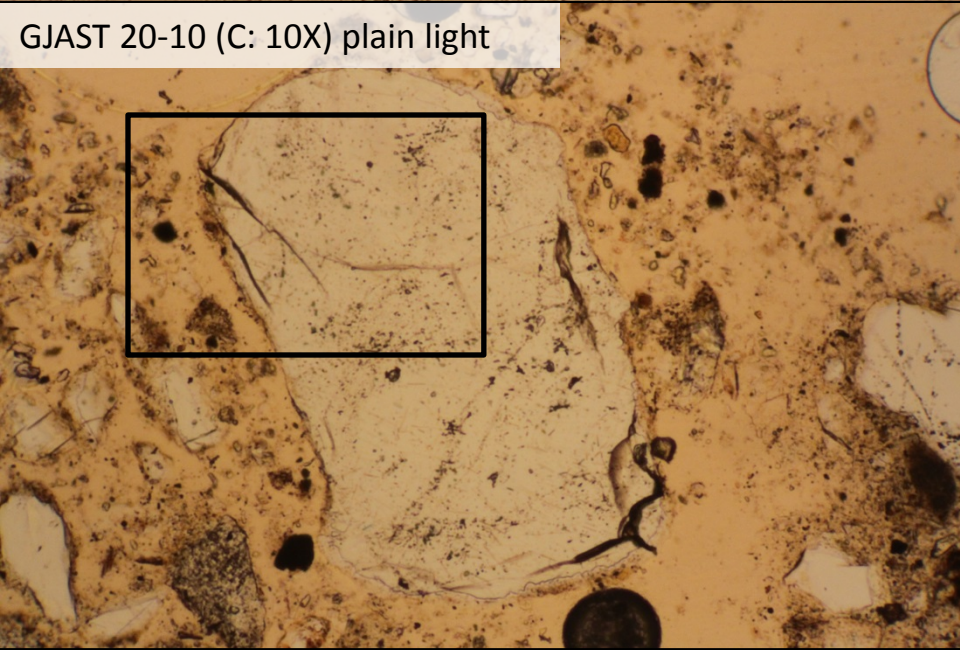
GJAST 20-10 (C: 10X) fission track



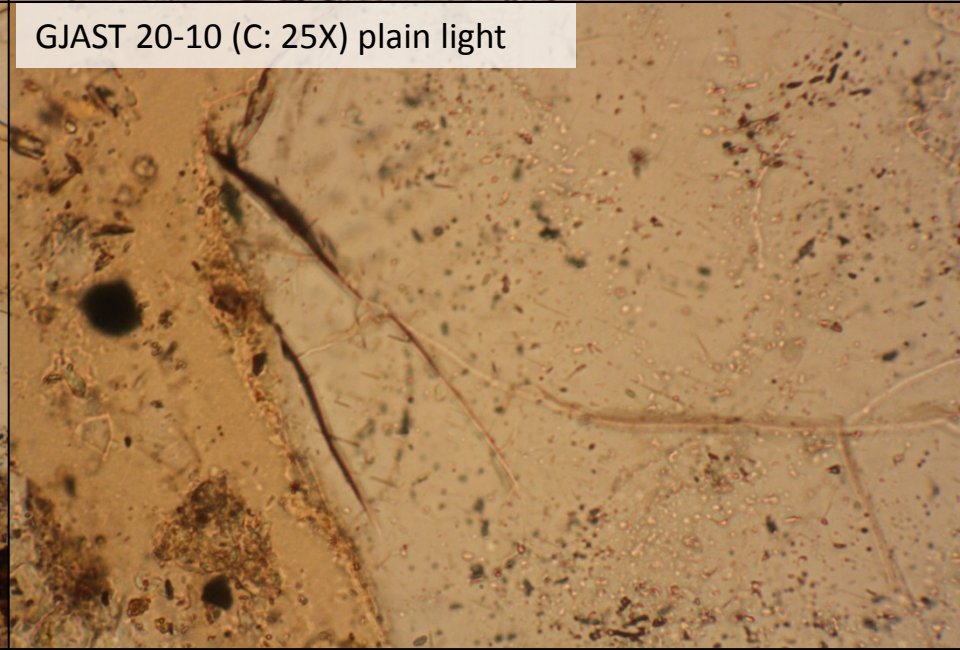
GJAST 20-10 (C: 25X) fission track

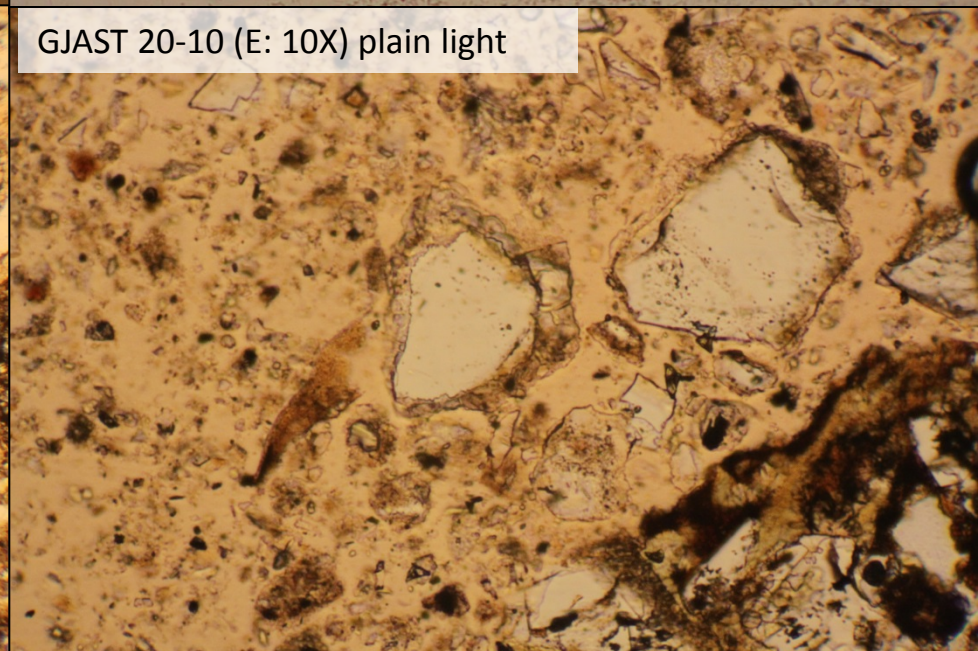
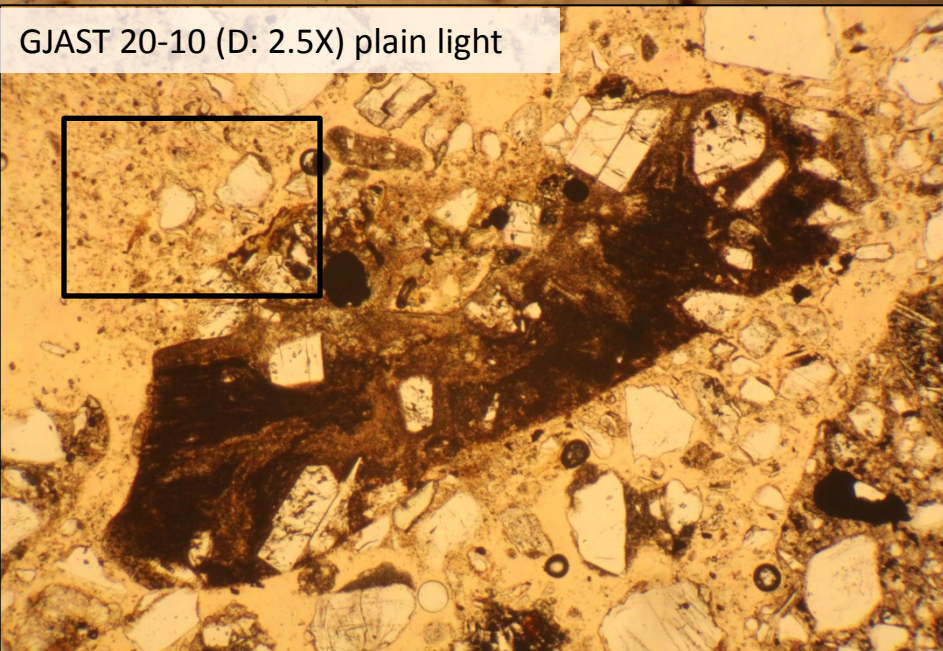
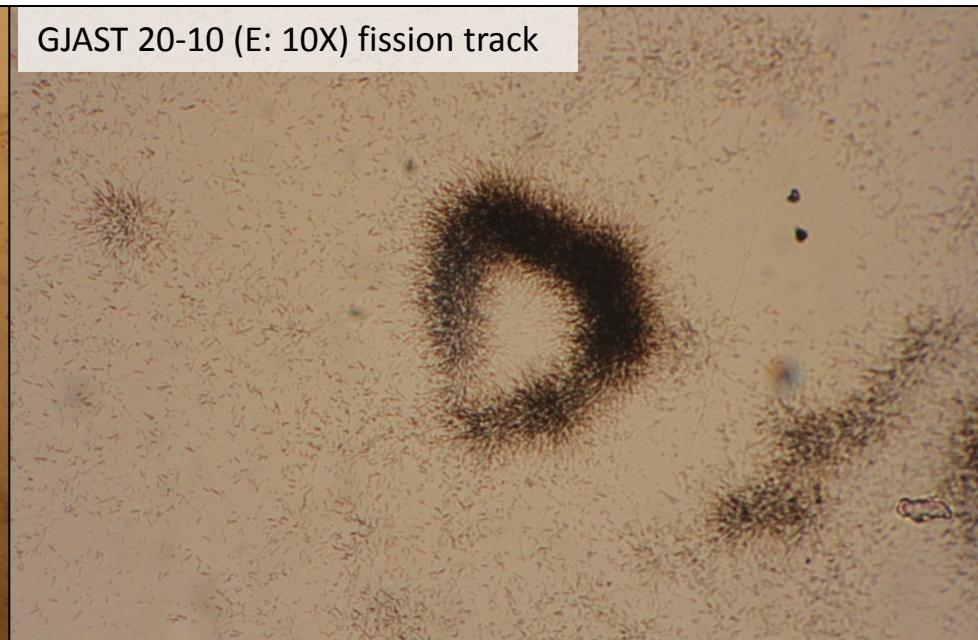
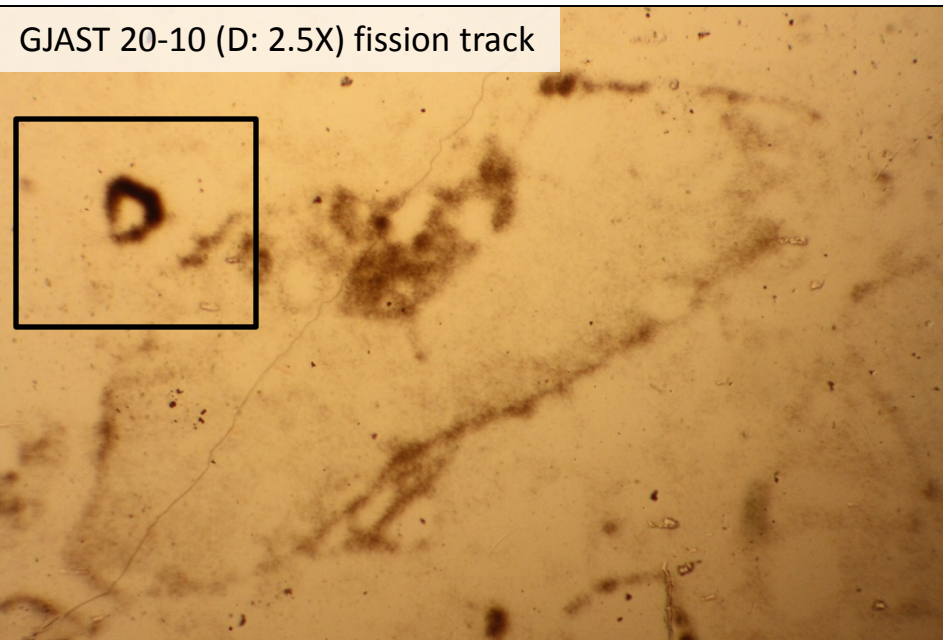


GJAST 20-10 (C: 10X) plain light

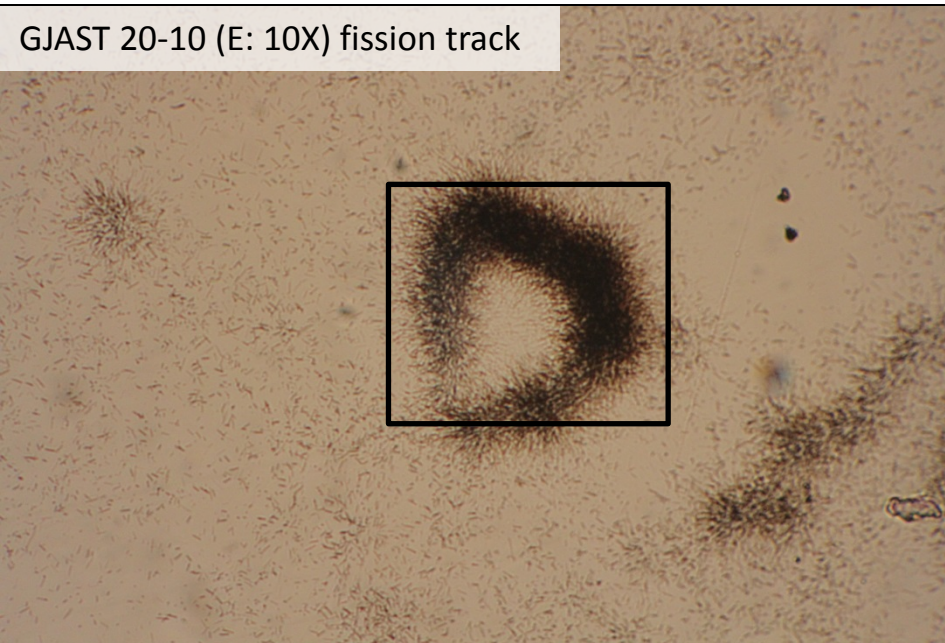


GJAST 20-10 (C: 25X) plain light

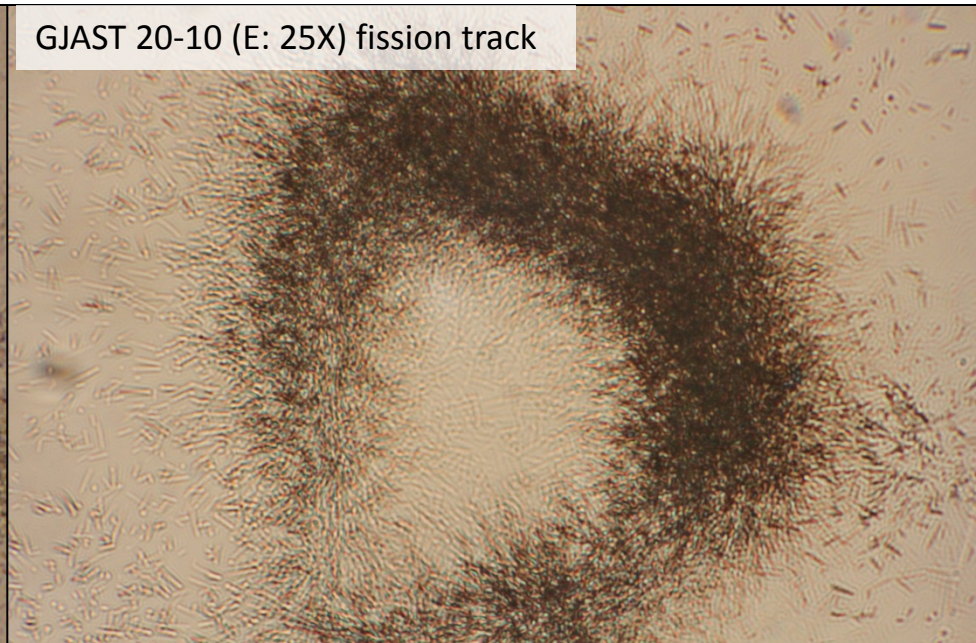




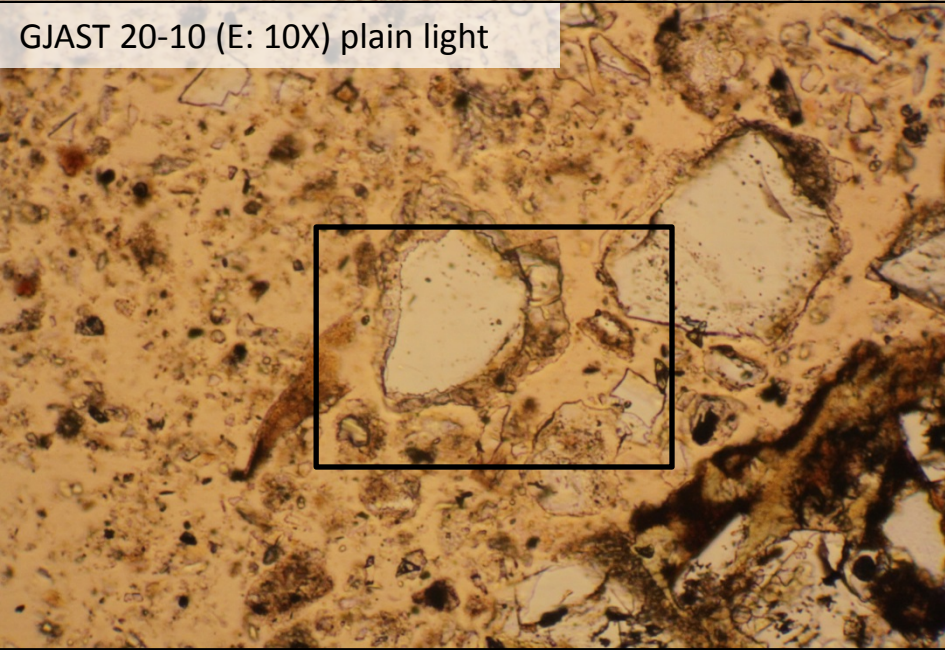
GJAST 20-10 (E: 10X) fission track



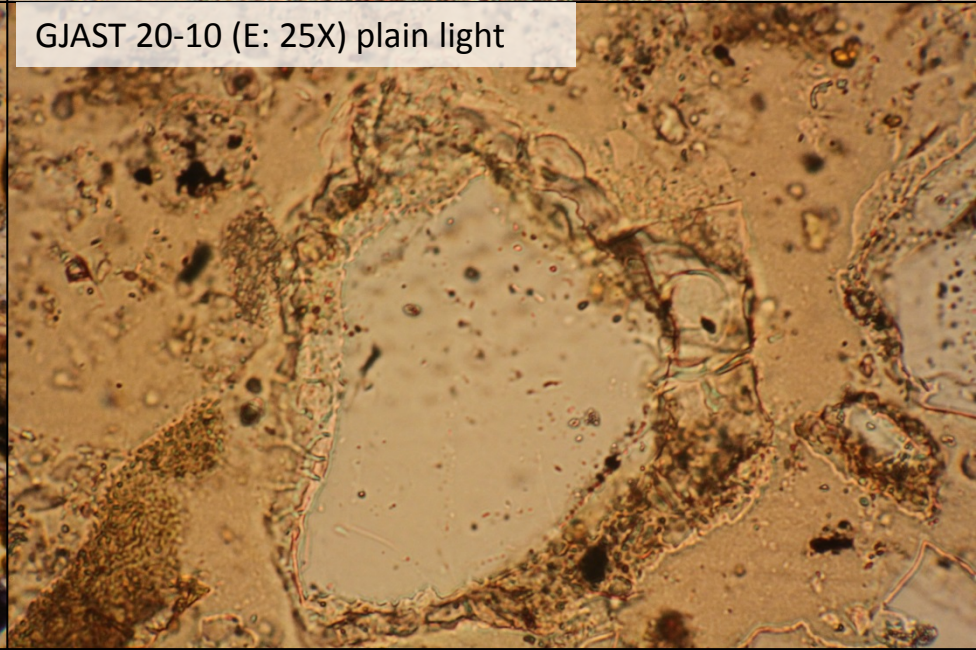
GJAST 20-10 (E: 25X) fission track

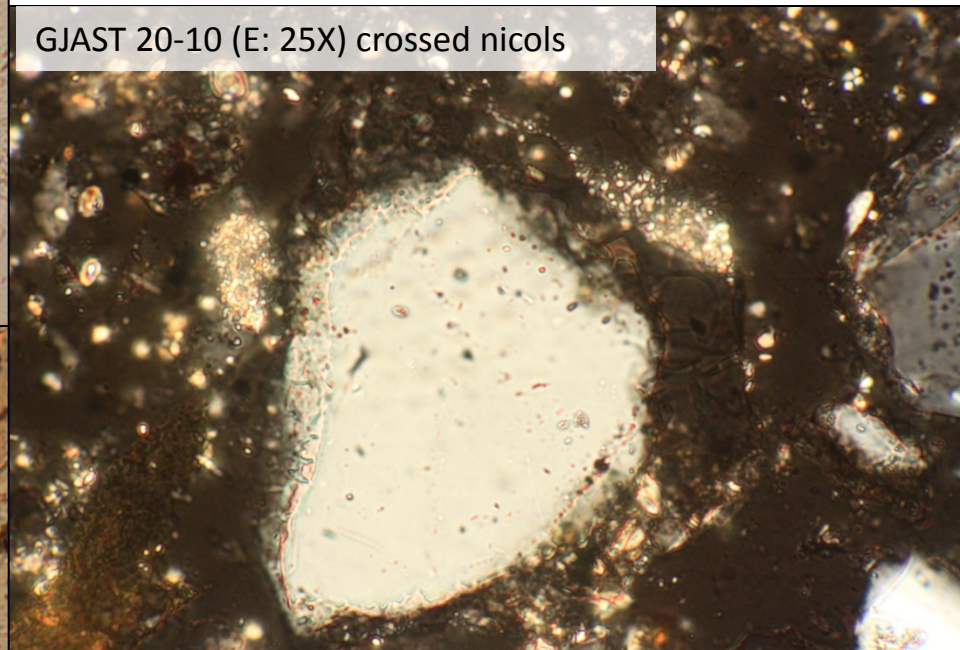
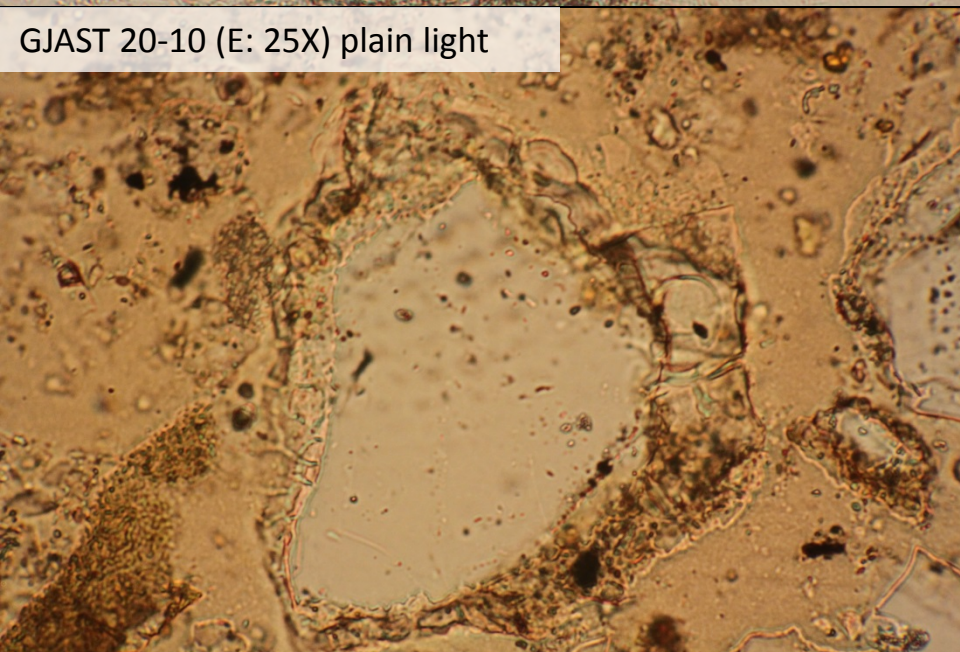
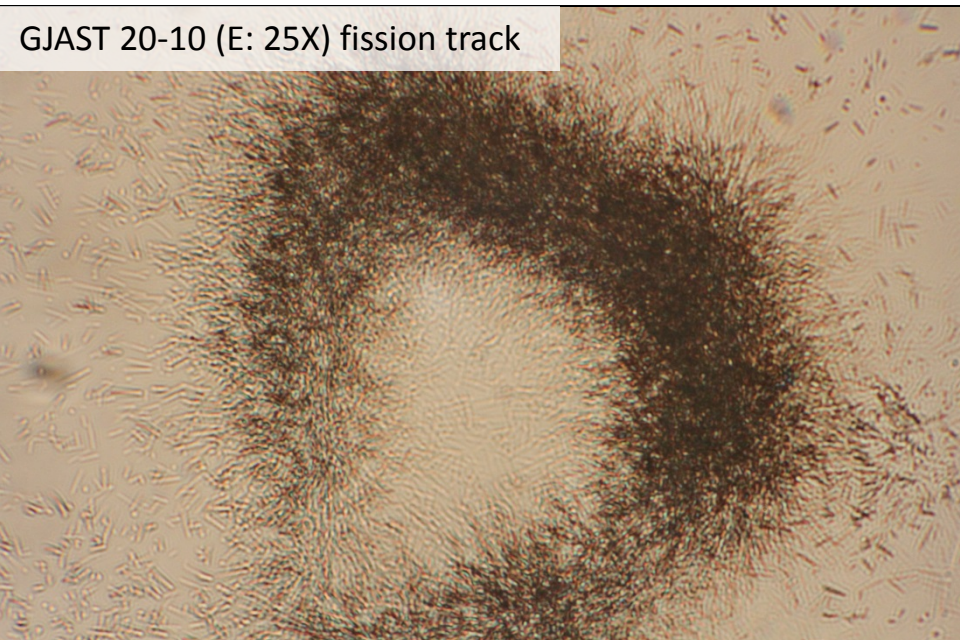


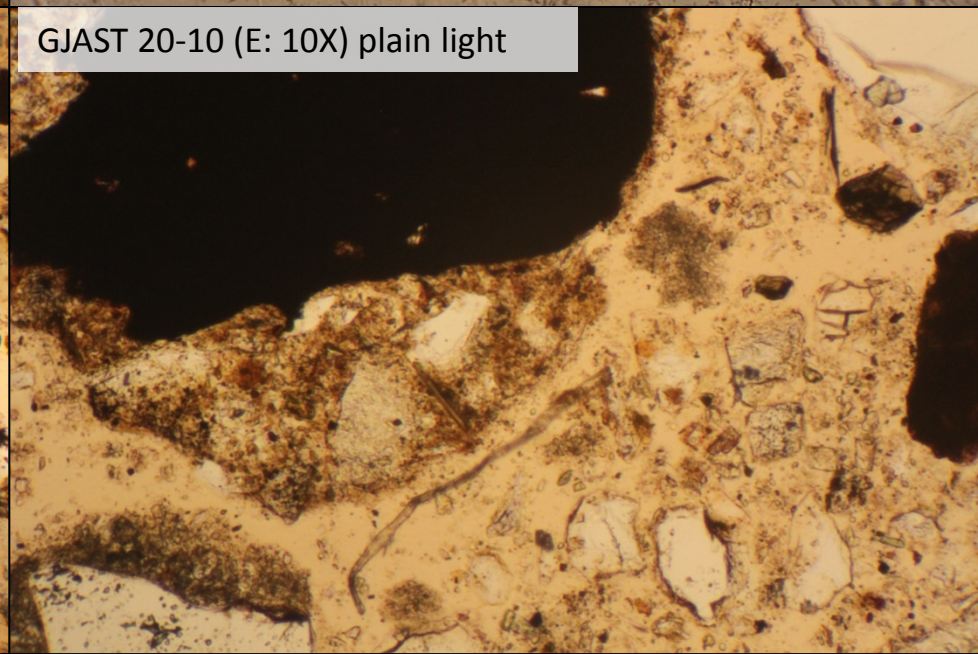
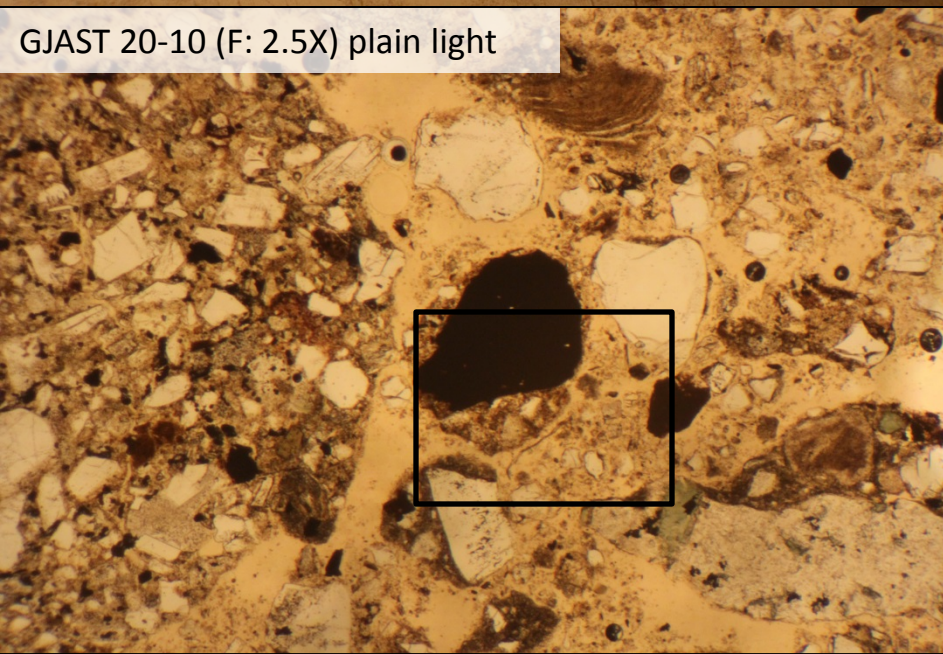
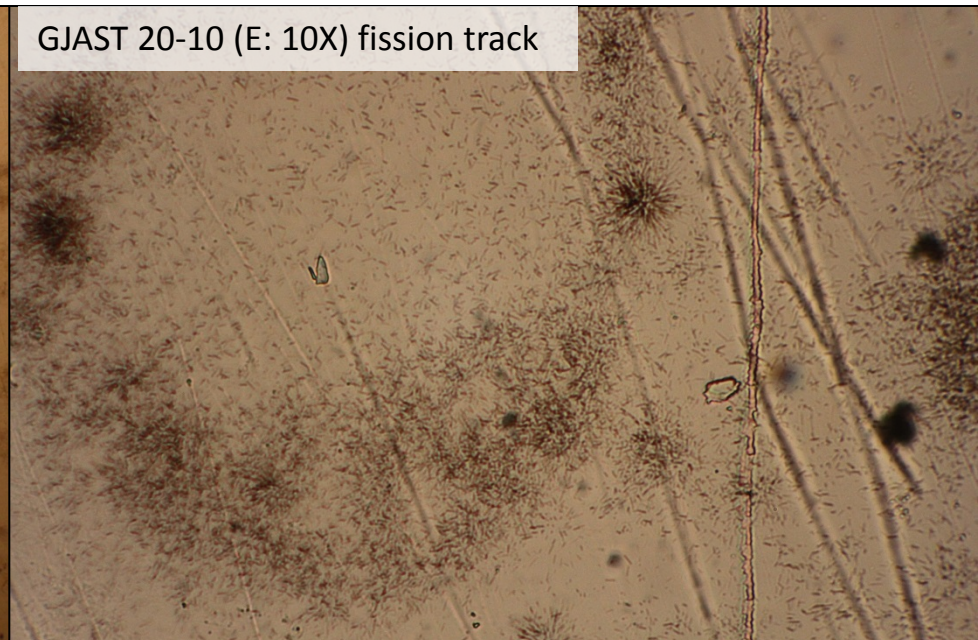
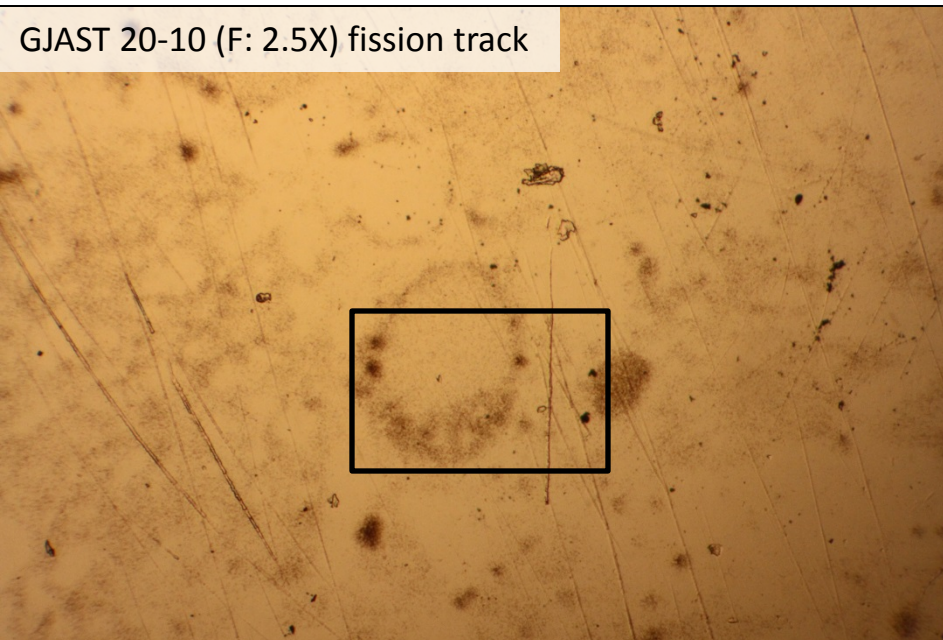
GJAST 20-10 (E: 10X) plain light

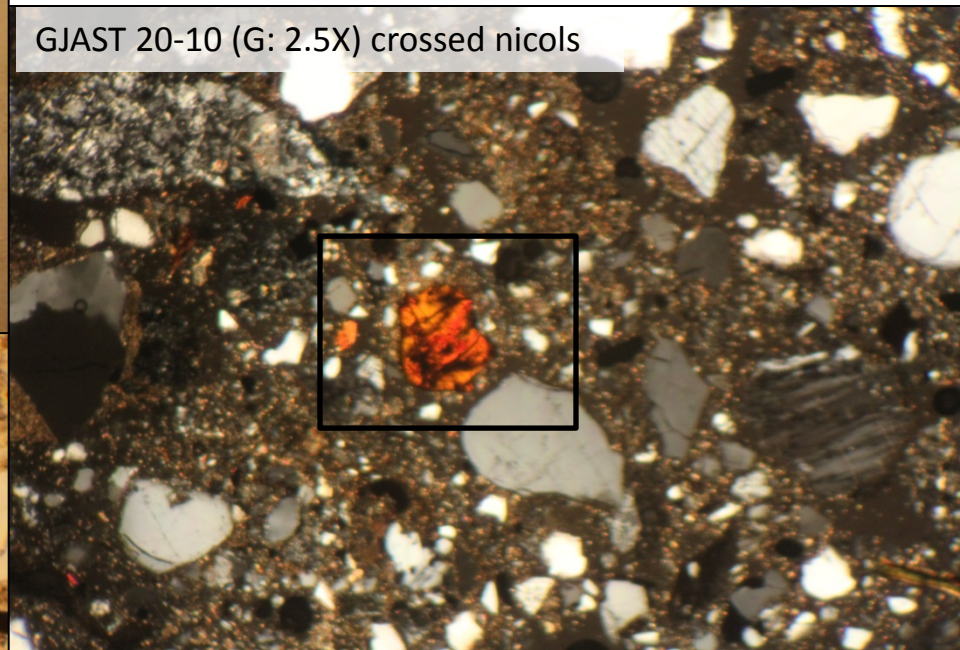
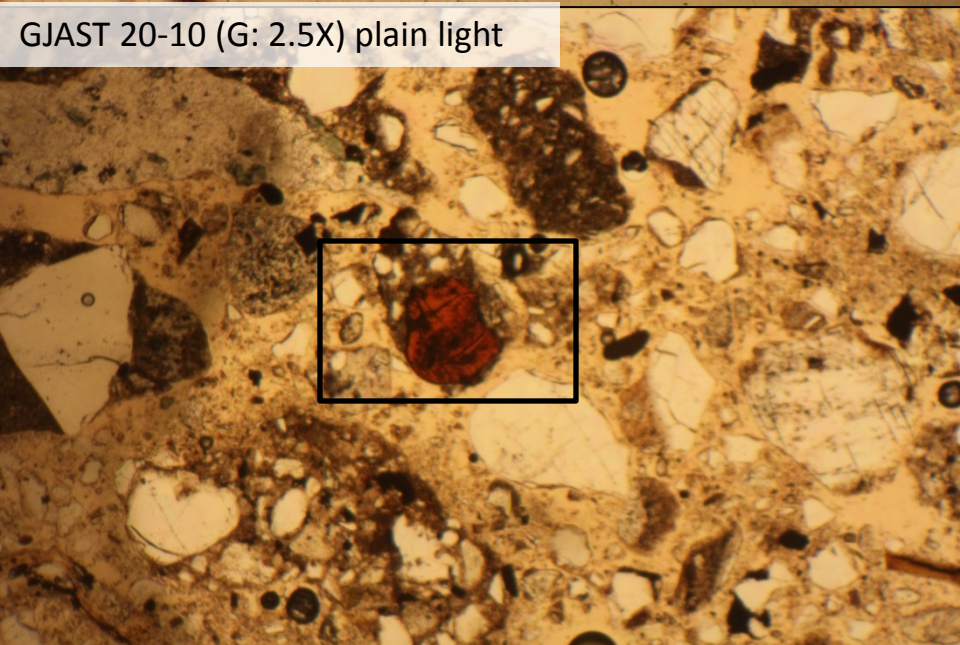
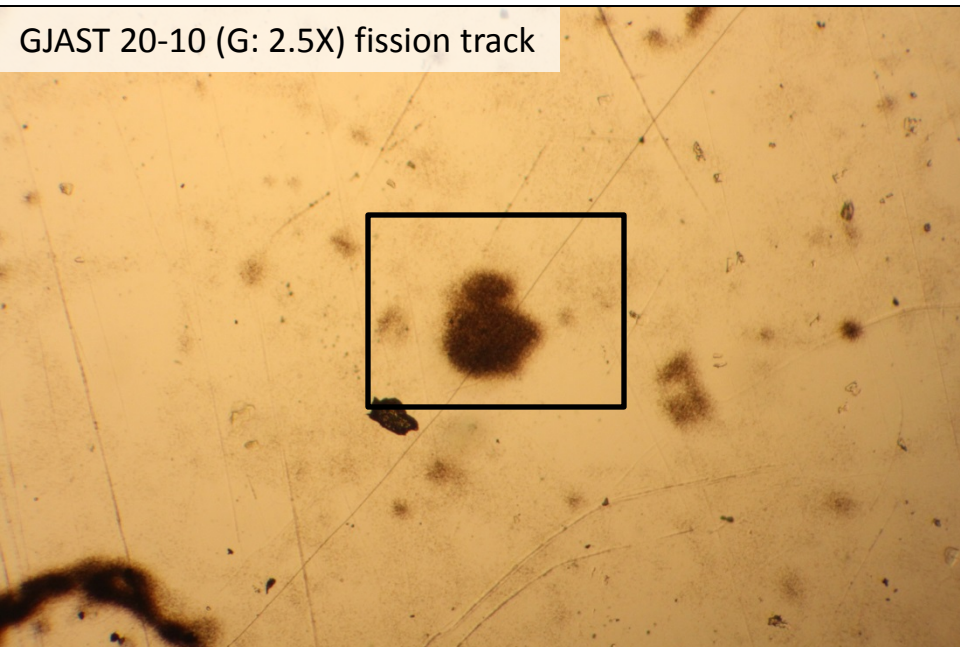


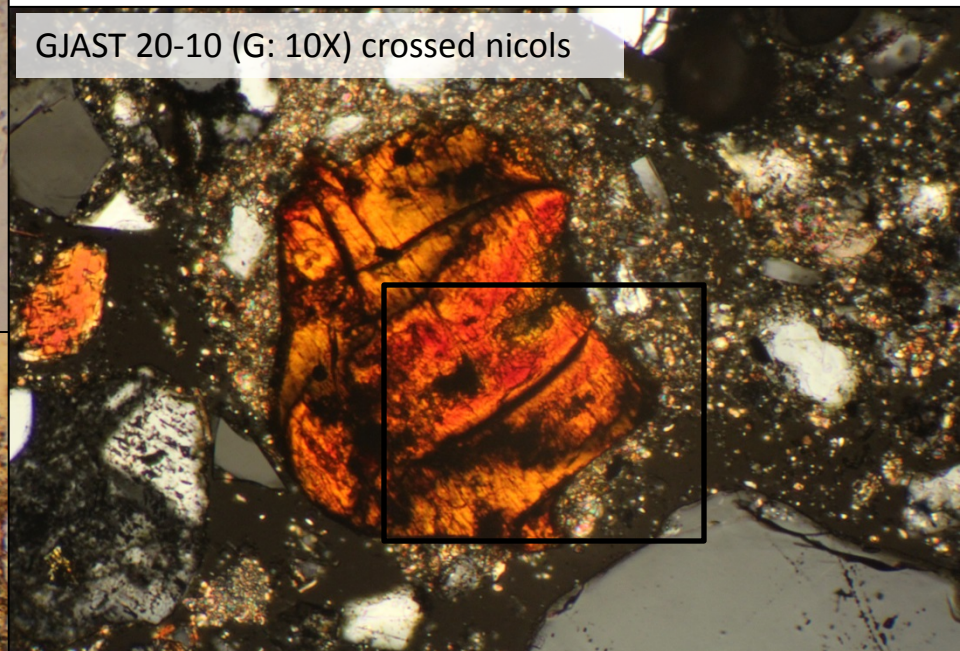
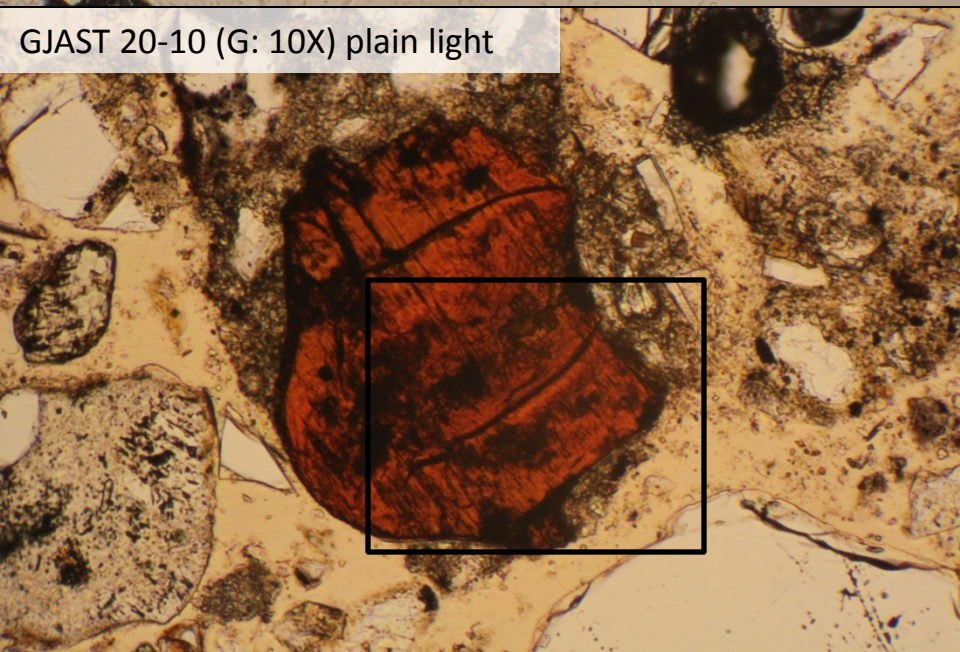
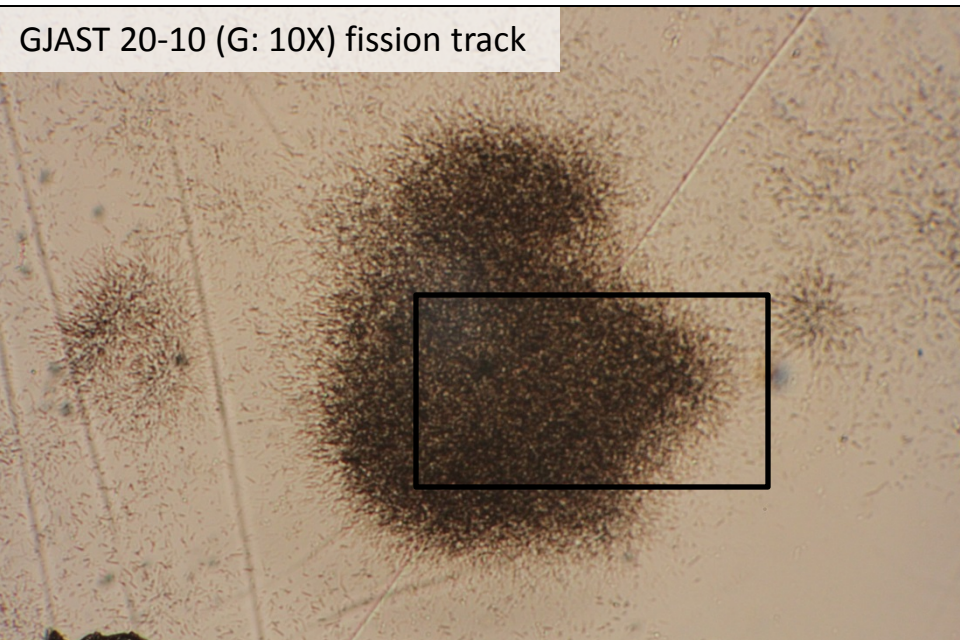
GJAST 20-10 (E: 25X) plain light

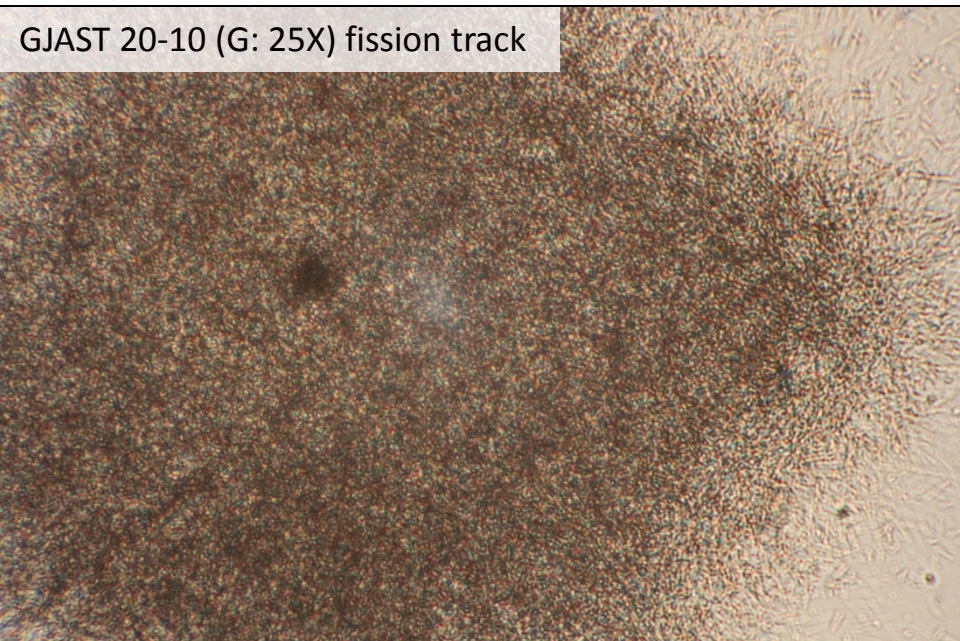




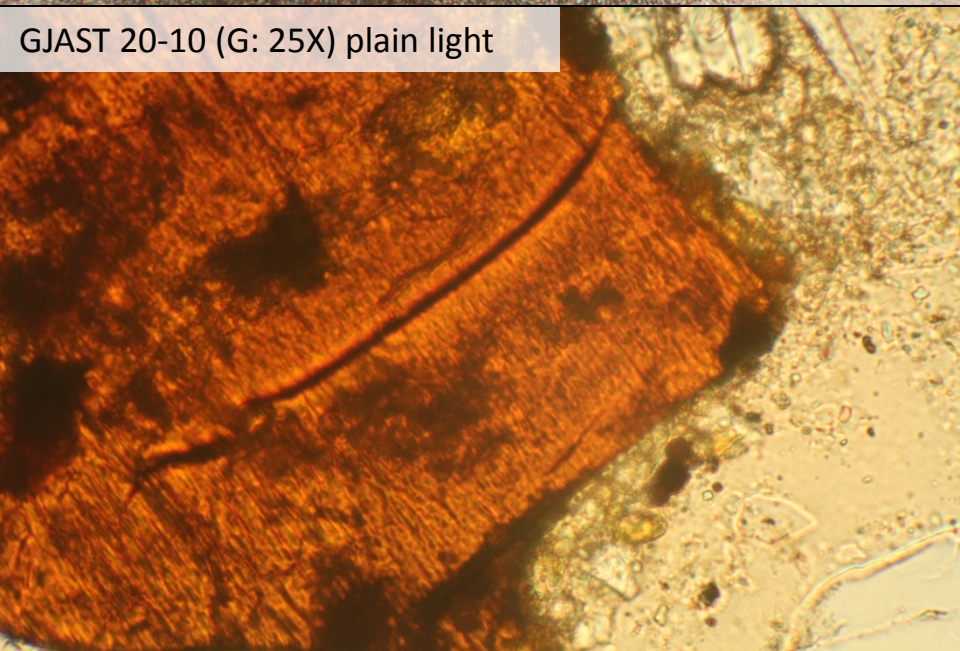
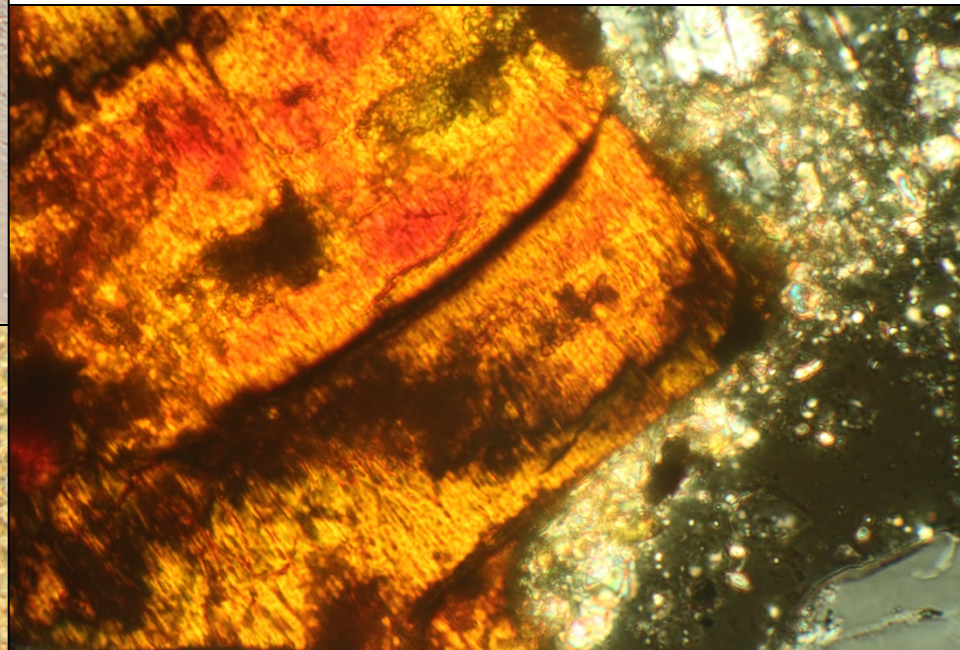


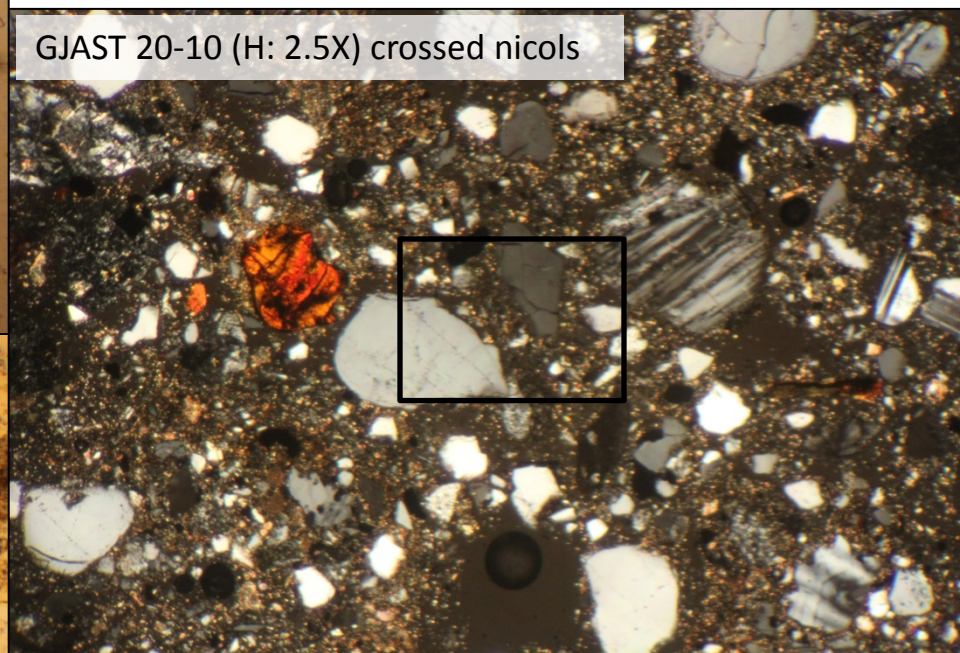
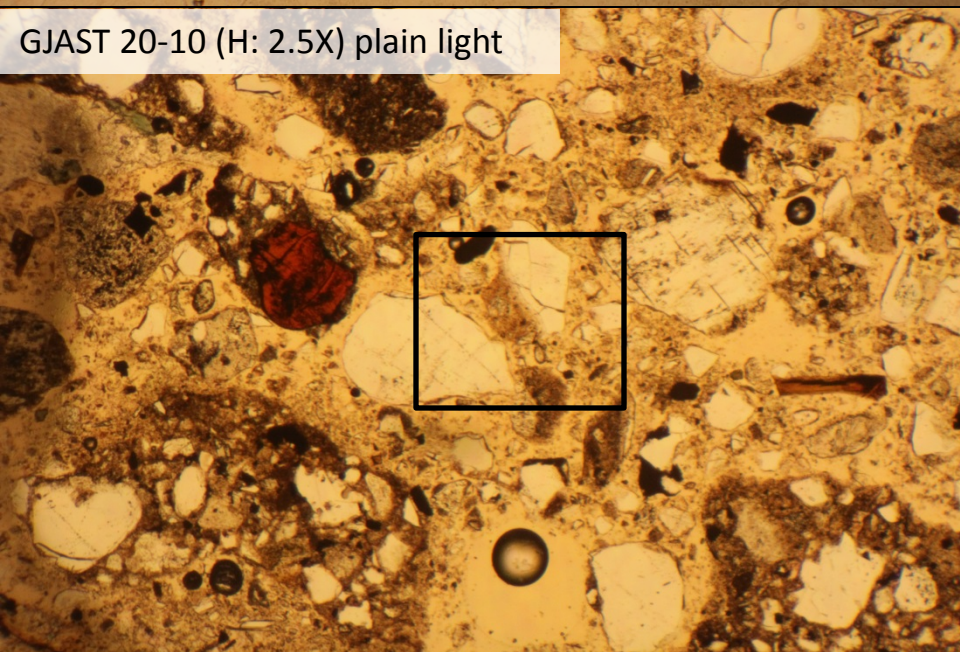
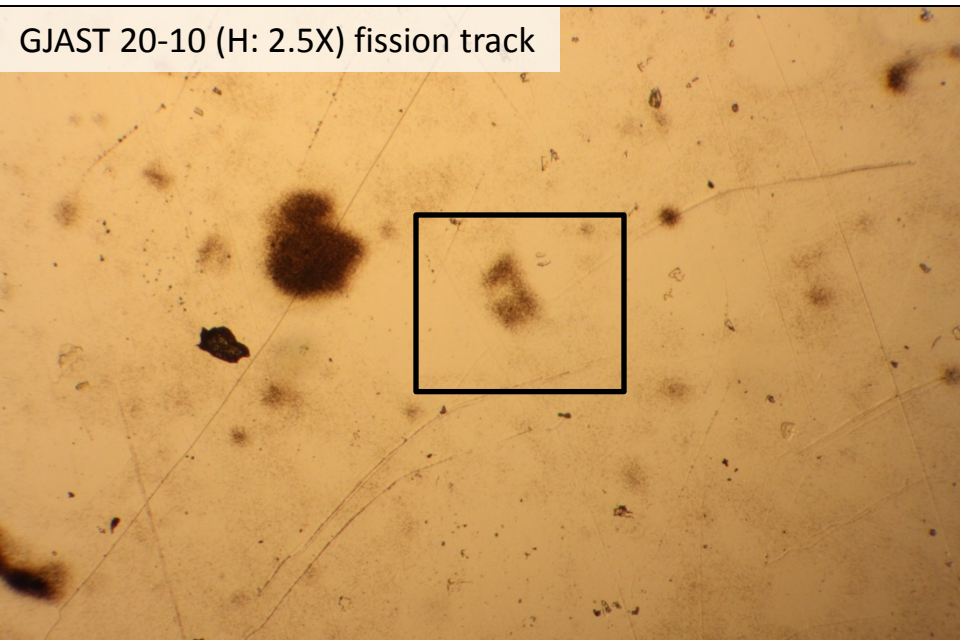




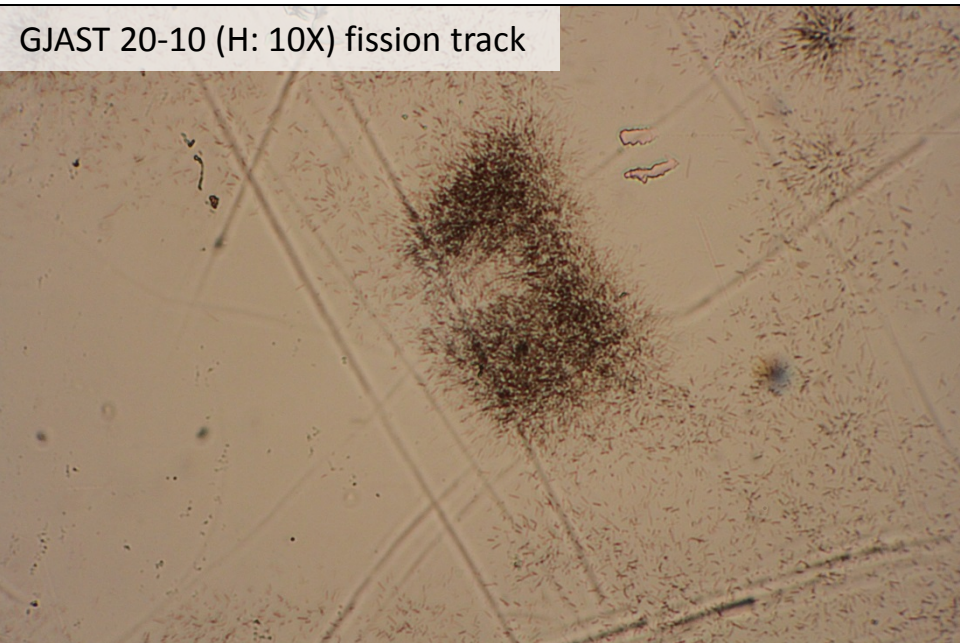


GJAST 20-10 (G: 25X) crossed nicols

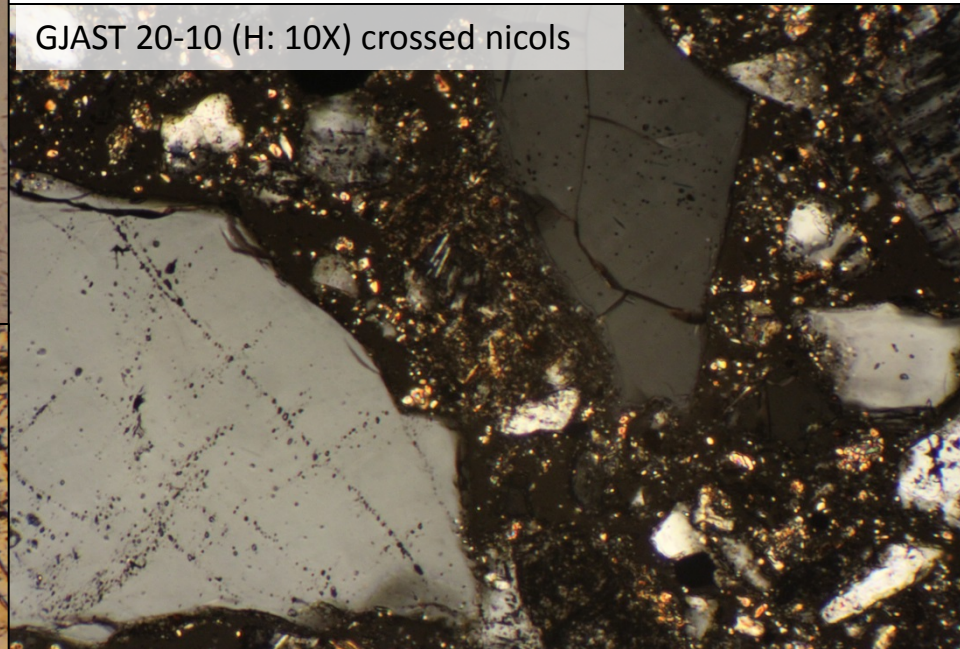




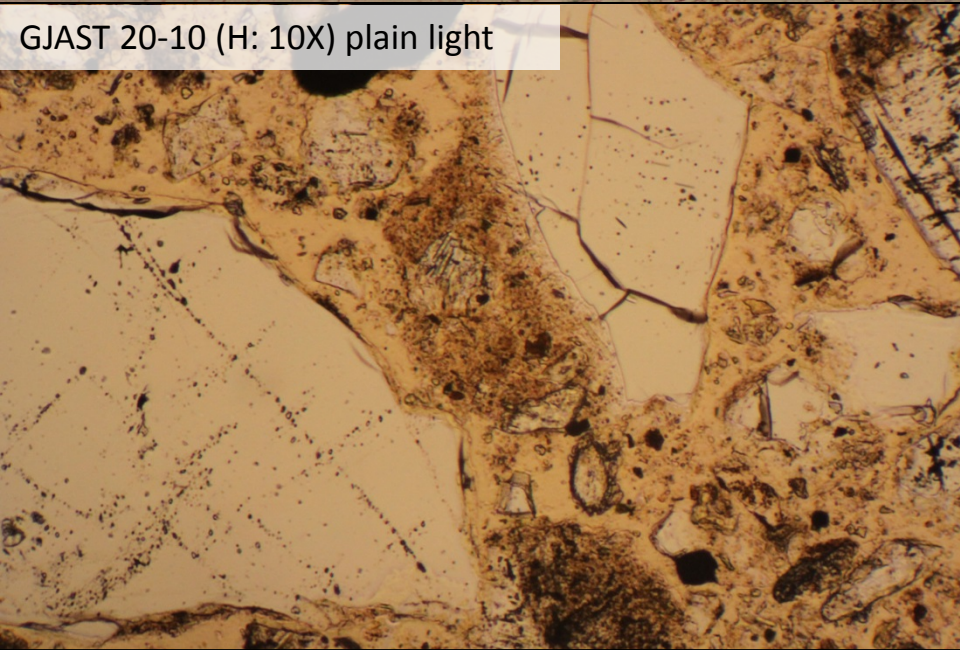
GJAST 20-10 (H: 10X) fission track

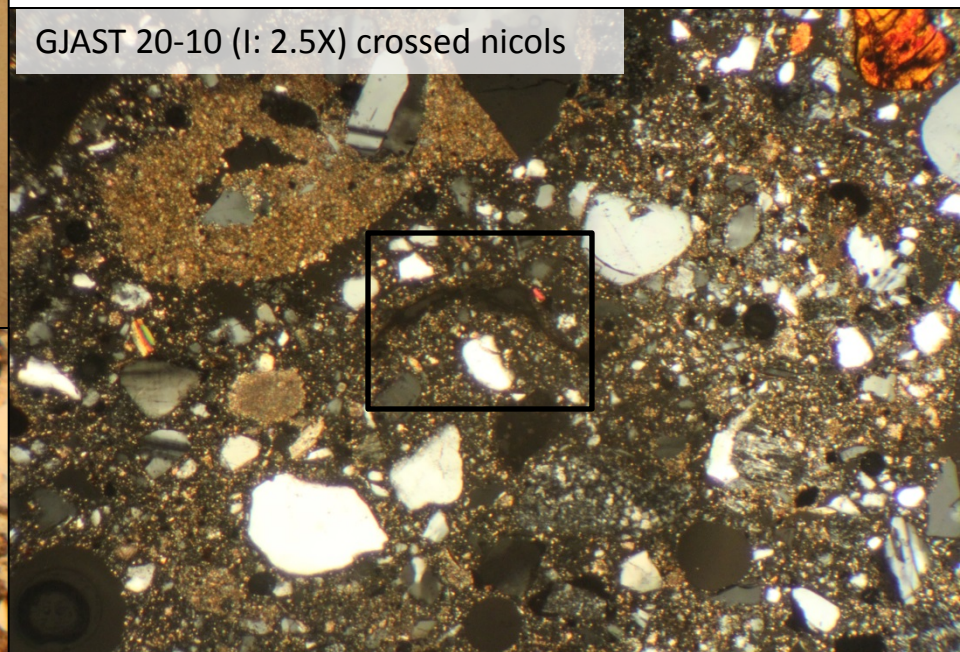
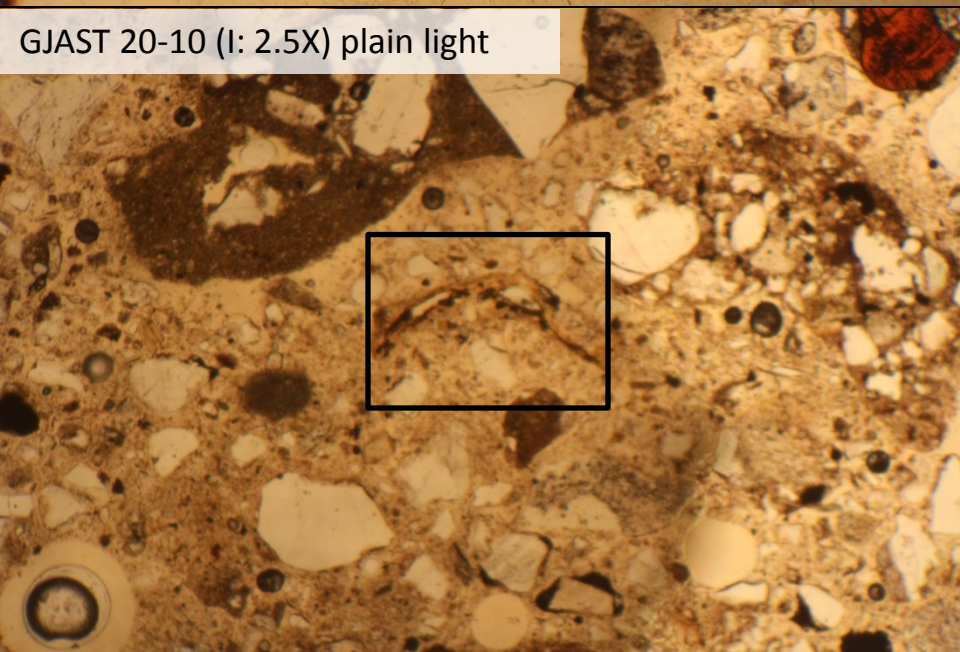
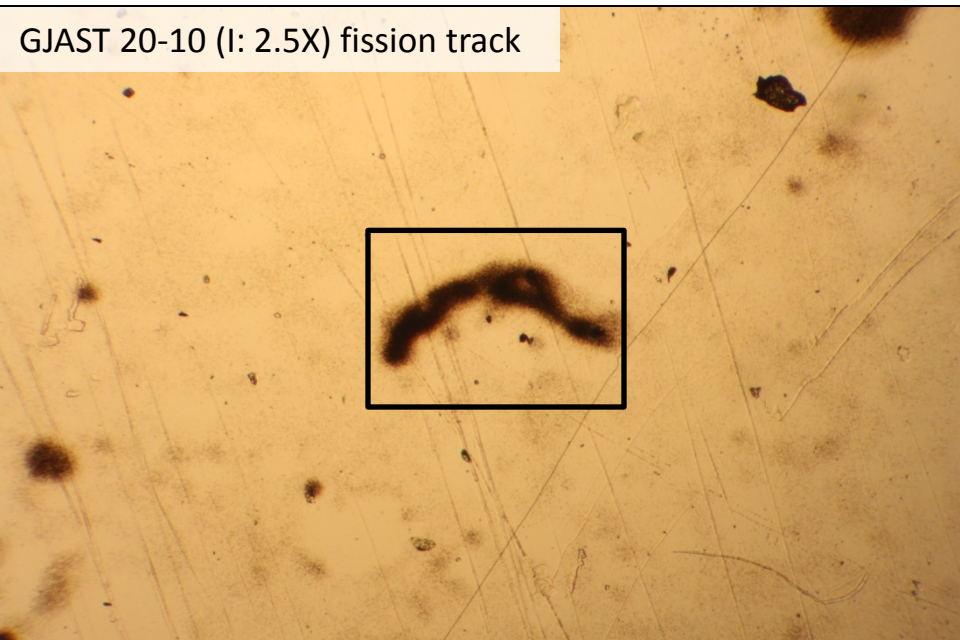


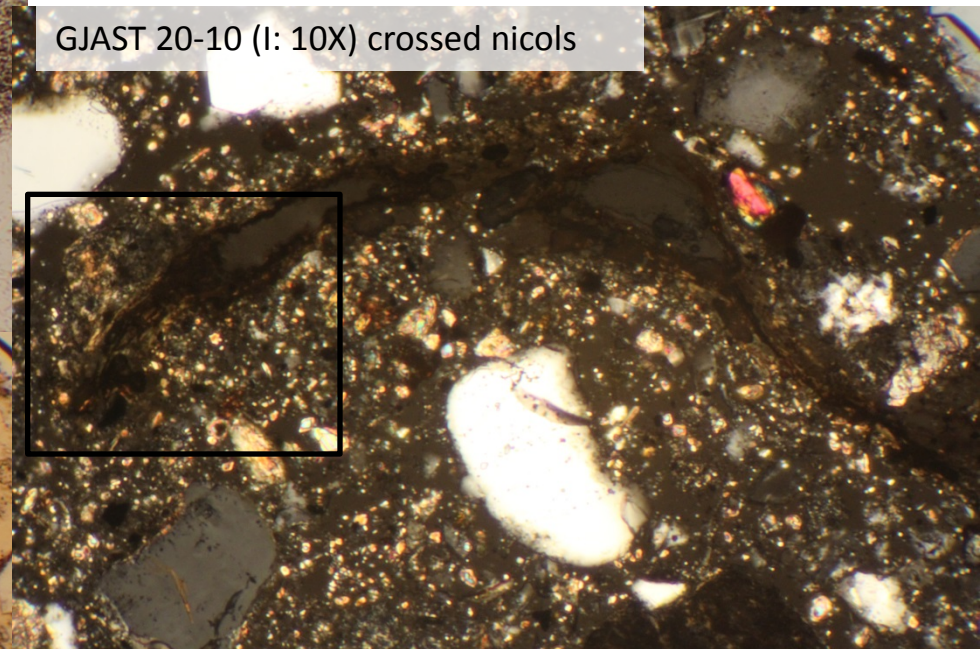
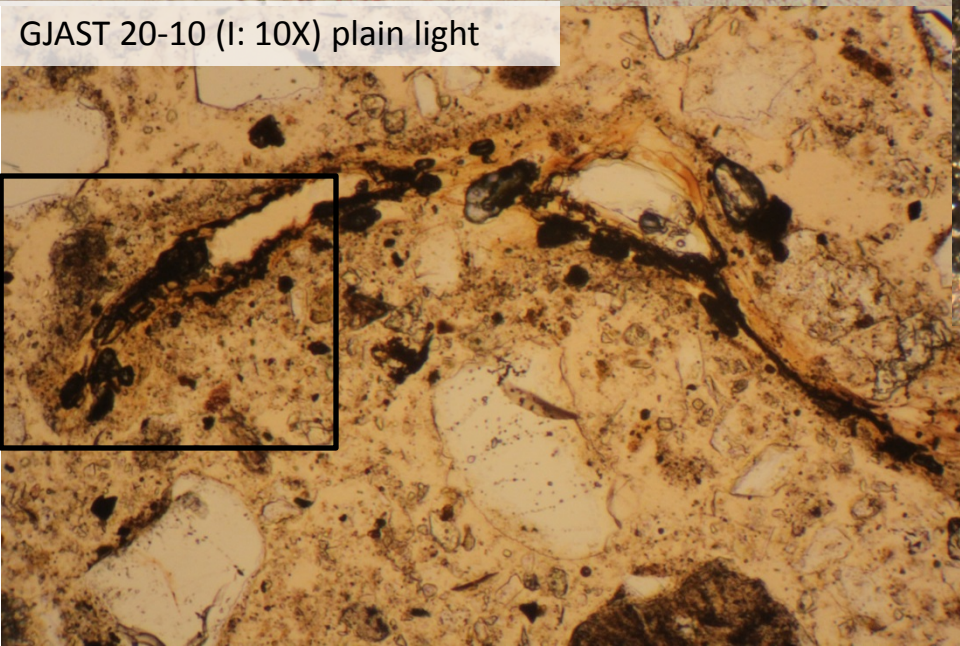
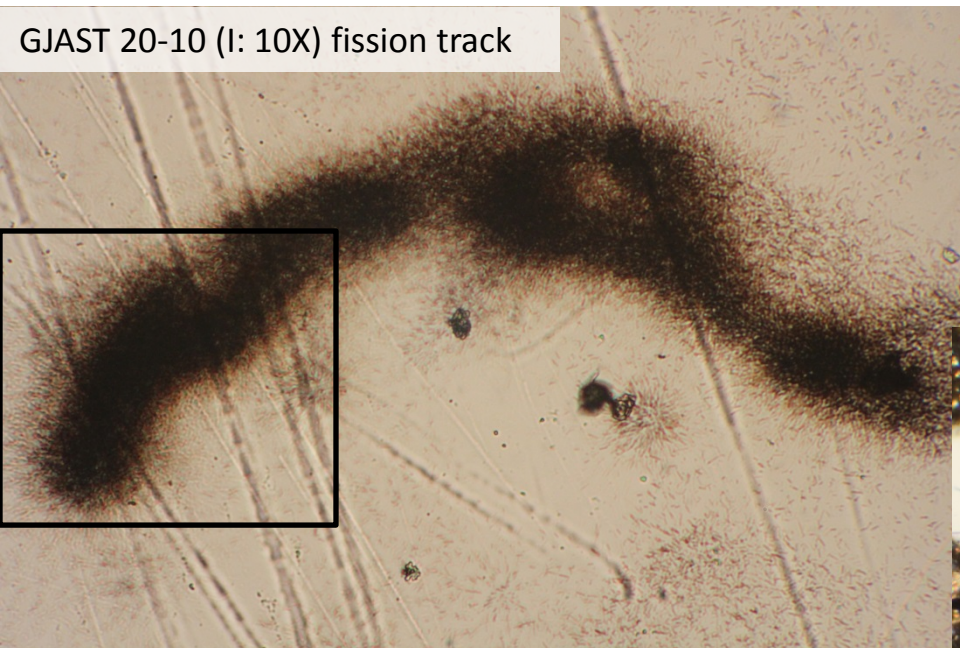
GJAST 20-10 (H: 10X) crossed nicols



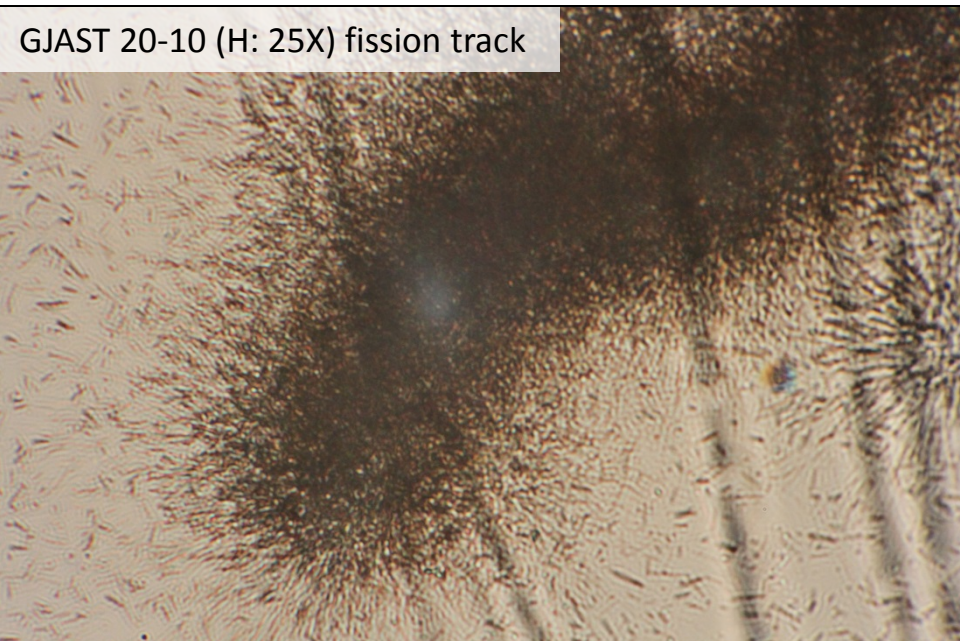
GJAST 20-10 (H: 10X) plain light



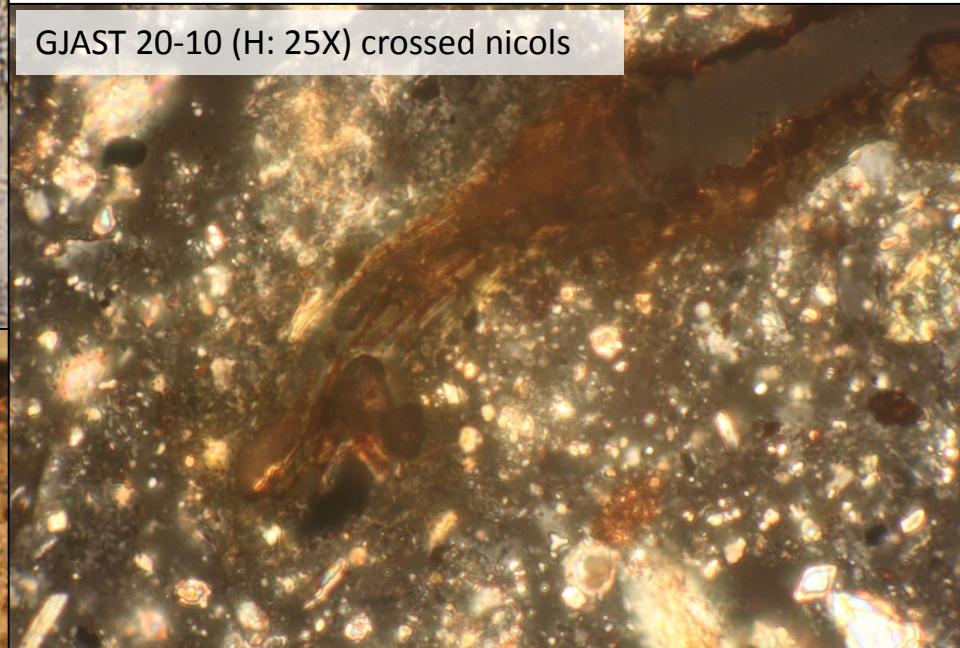




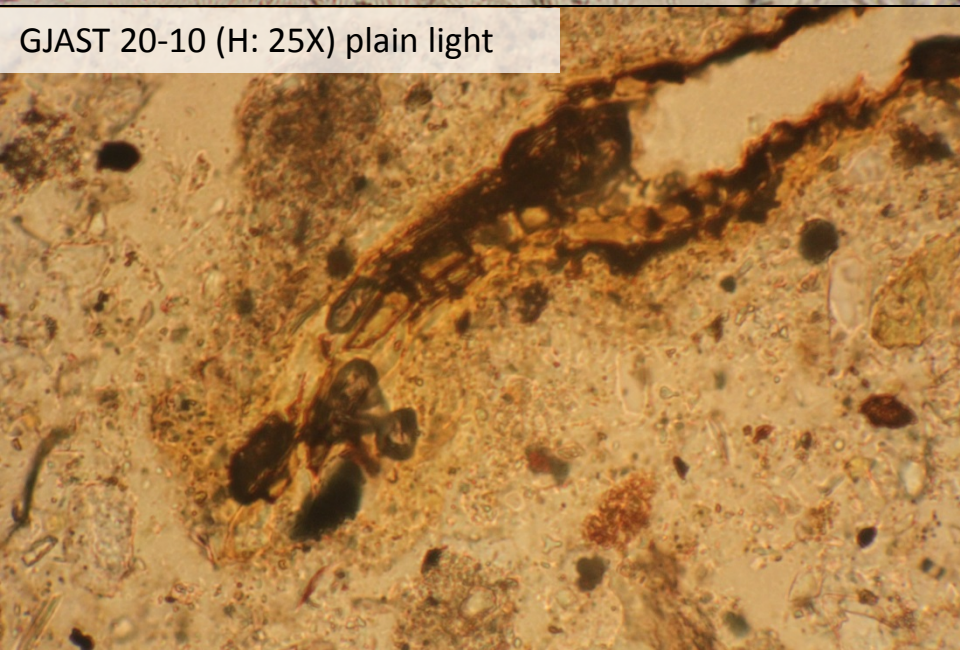
GJAST 20-10 (H: 25X) fission track

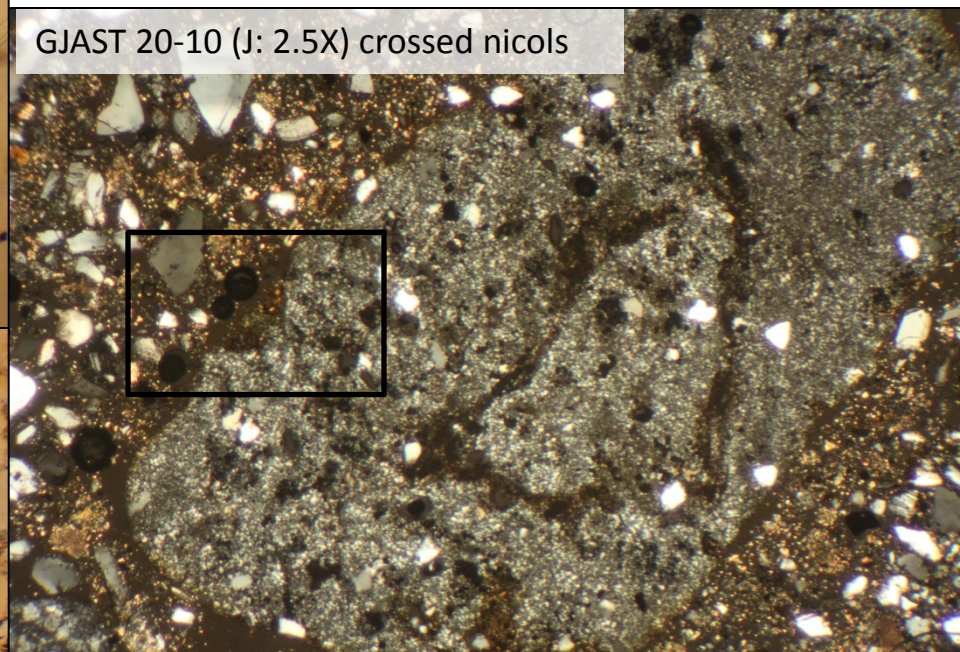
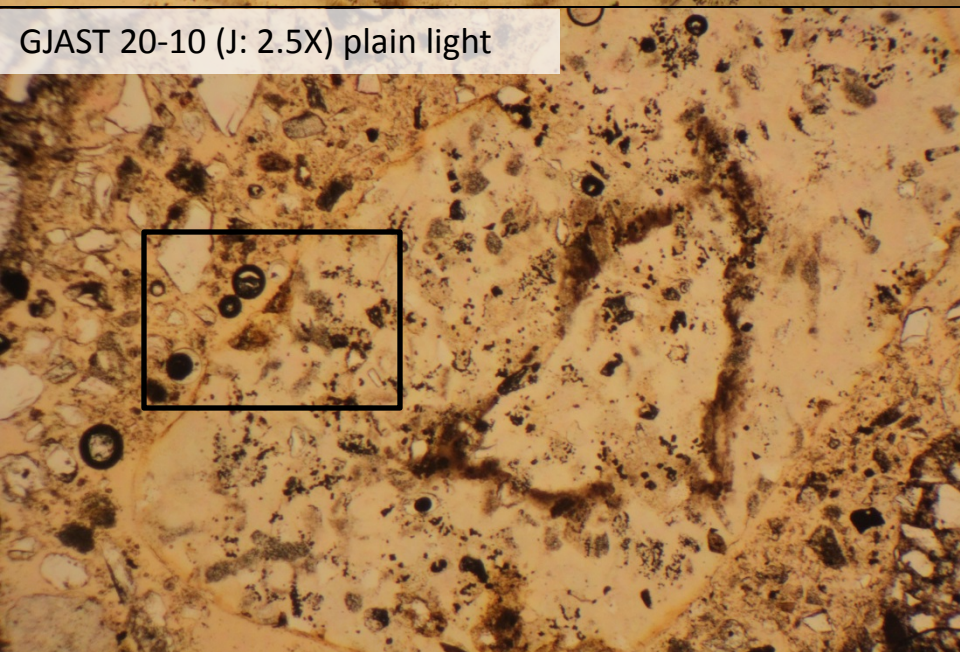
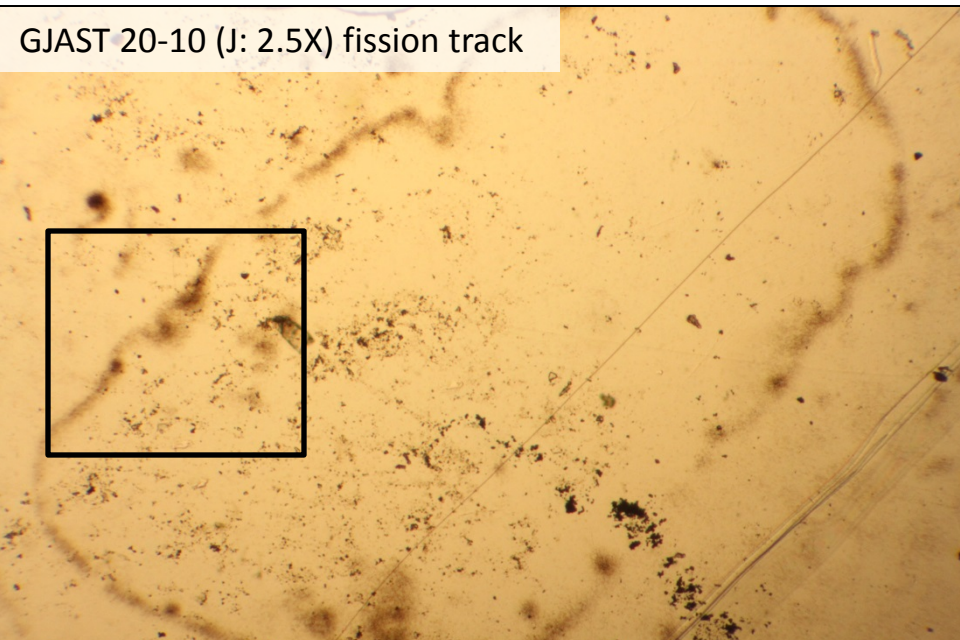


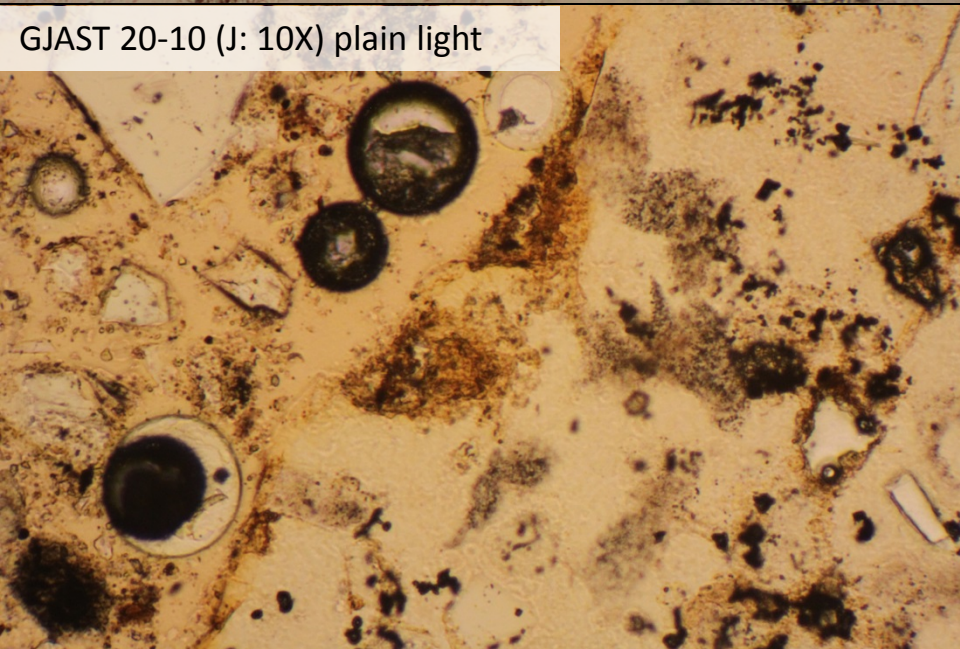
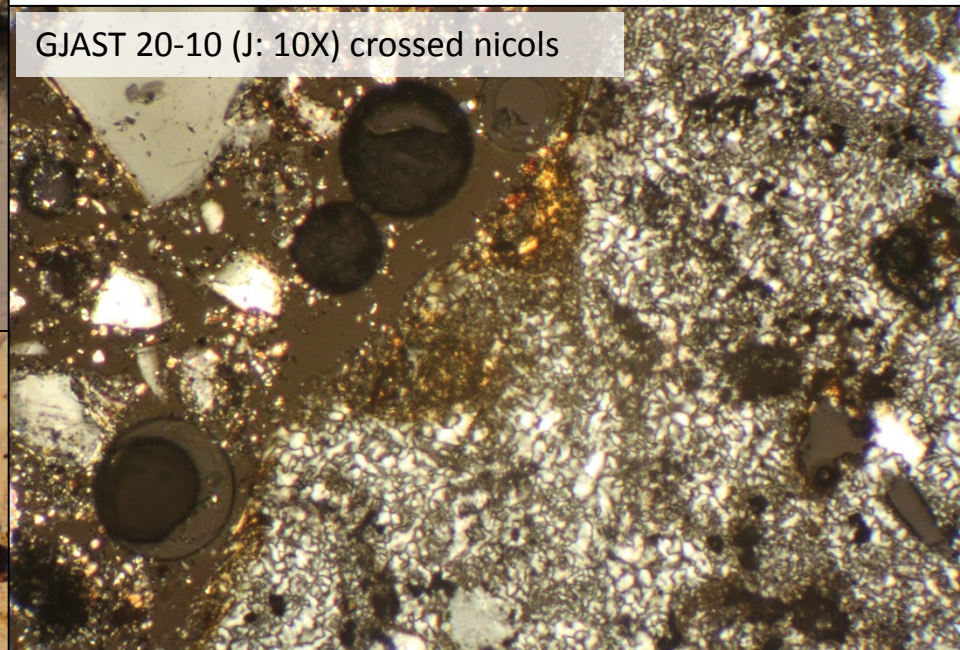
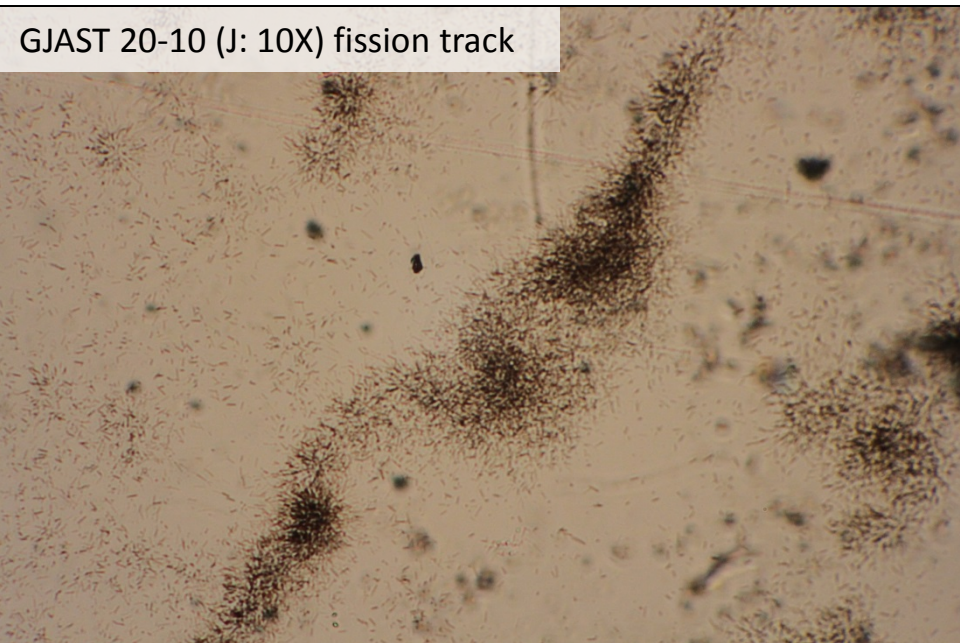
GJAST 20-10 (H: 25X) crossed nicols



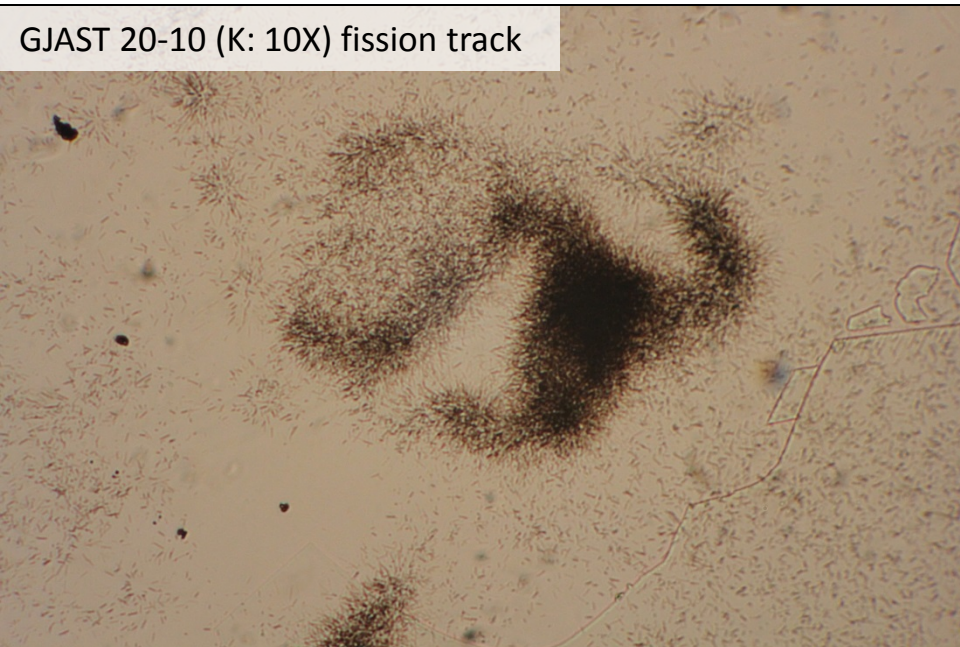
GJAST 20-10 (H: 25X) plain light



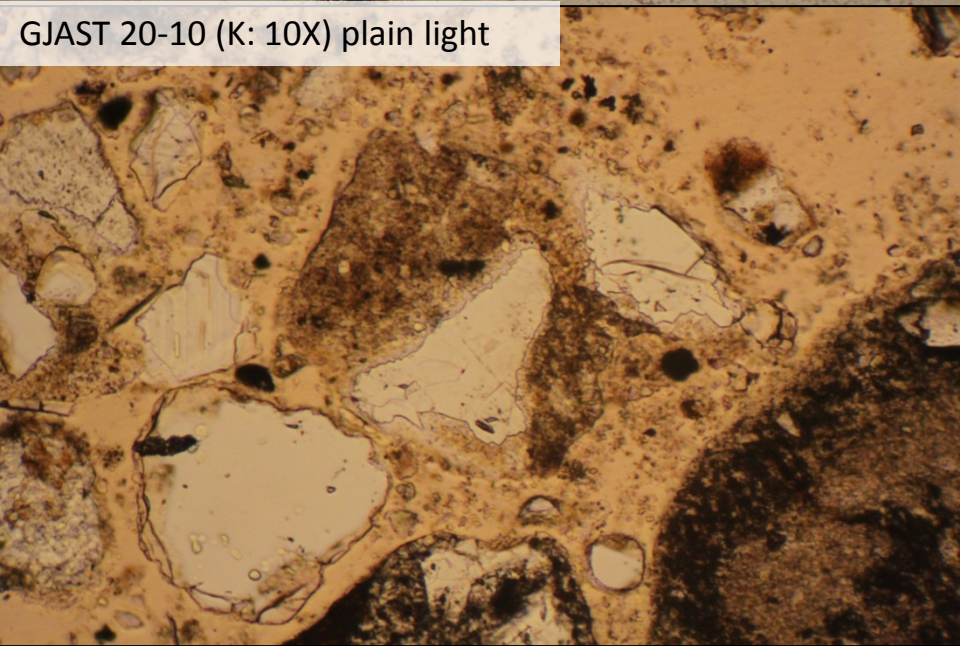


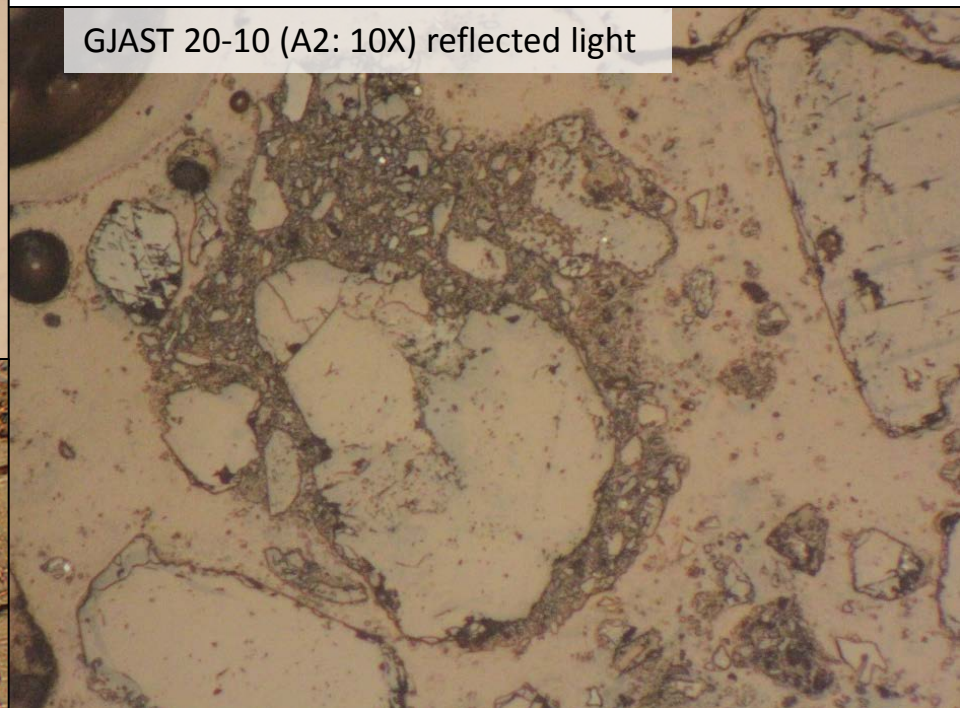
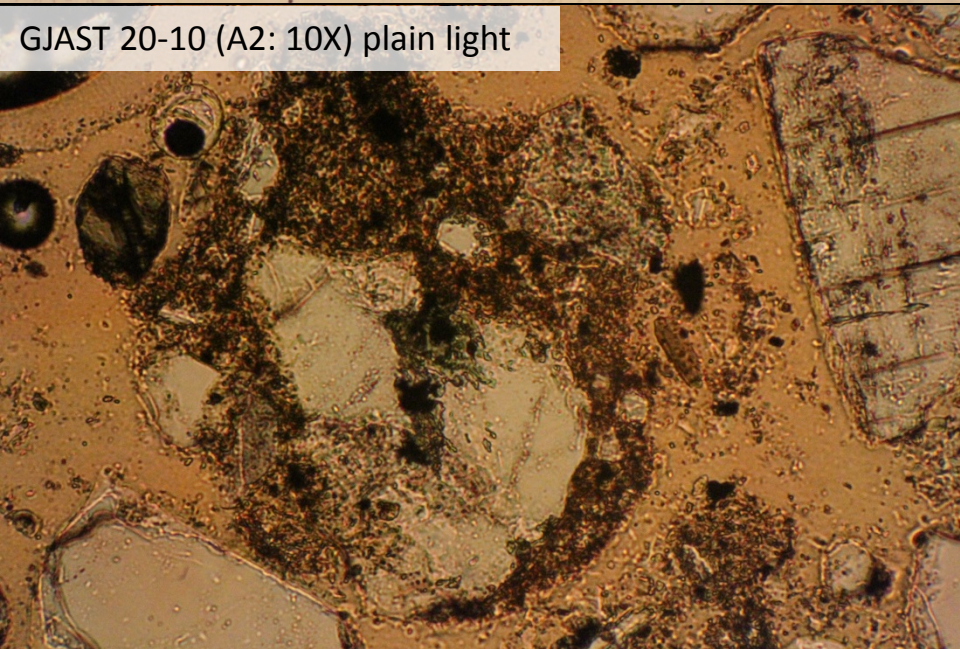
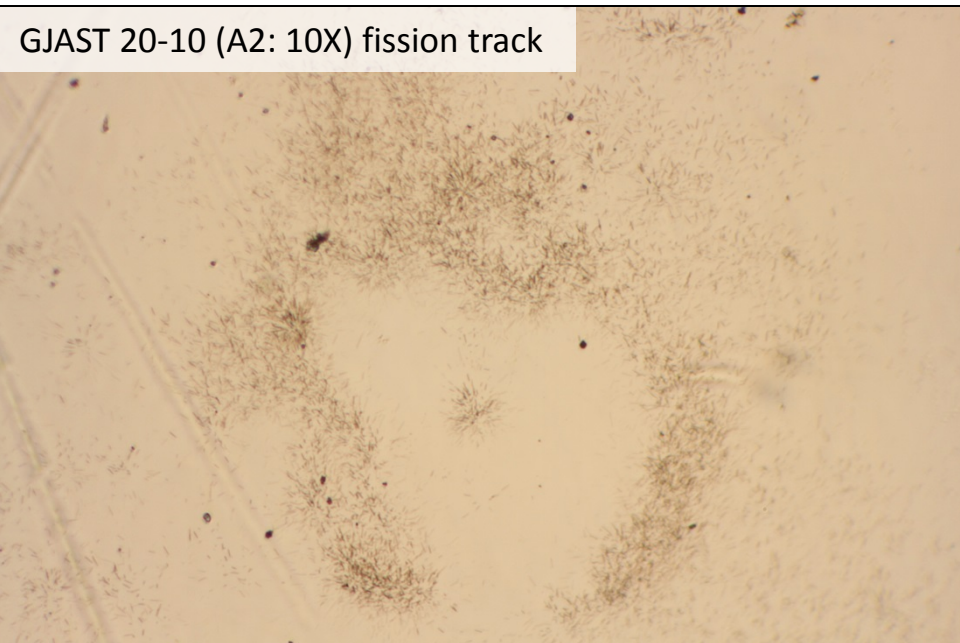


GJAST 20-10 (K: 10X) fission track

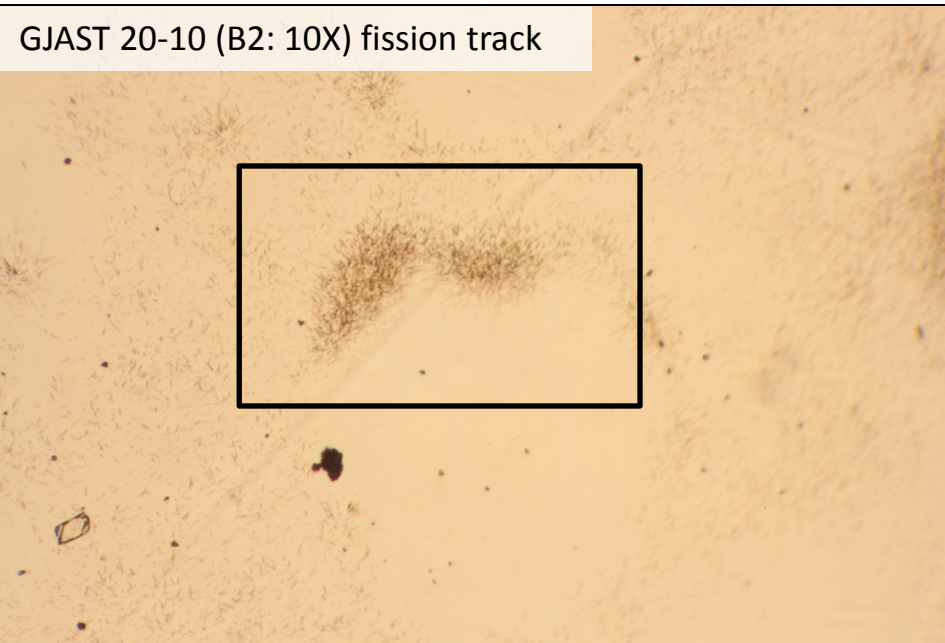


GJAST 20-10 (K: 10X) plain light

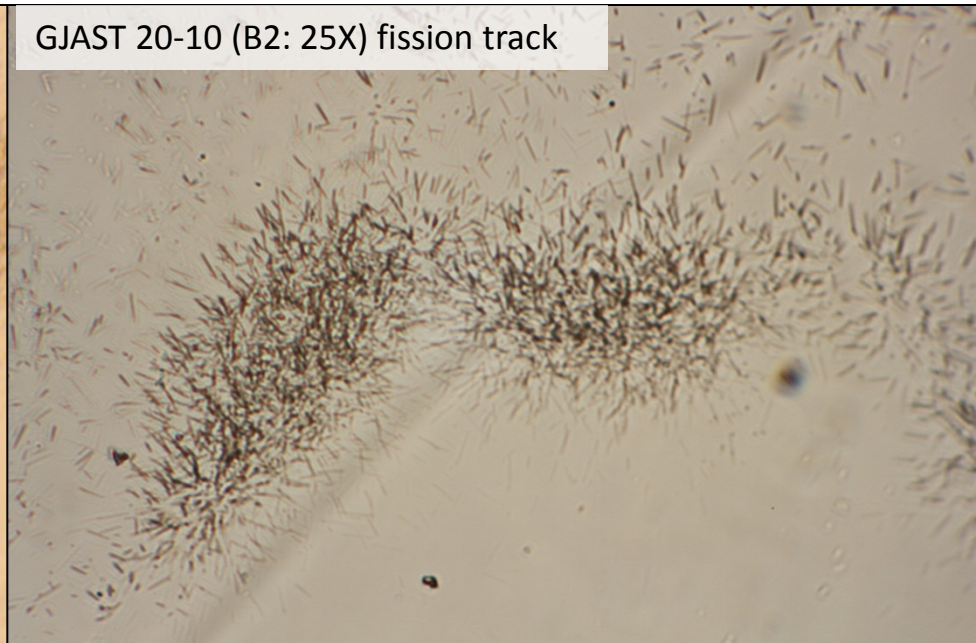




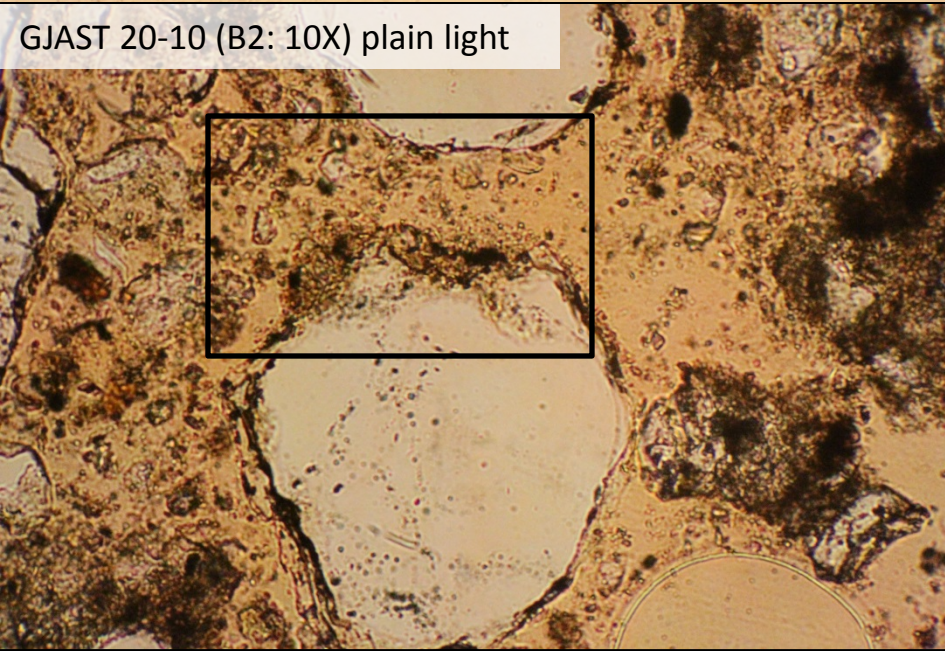
GJAST 20-10 (B2: 10X) fission track



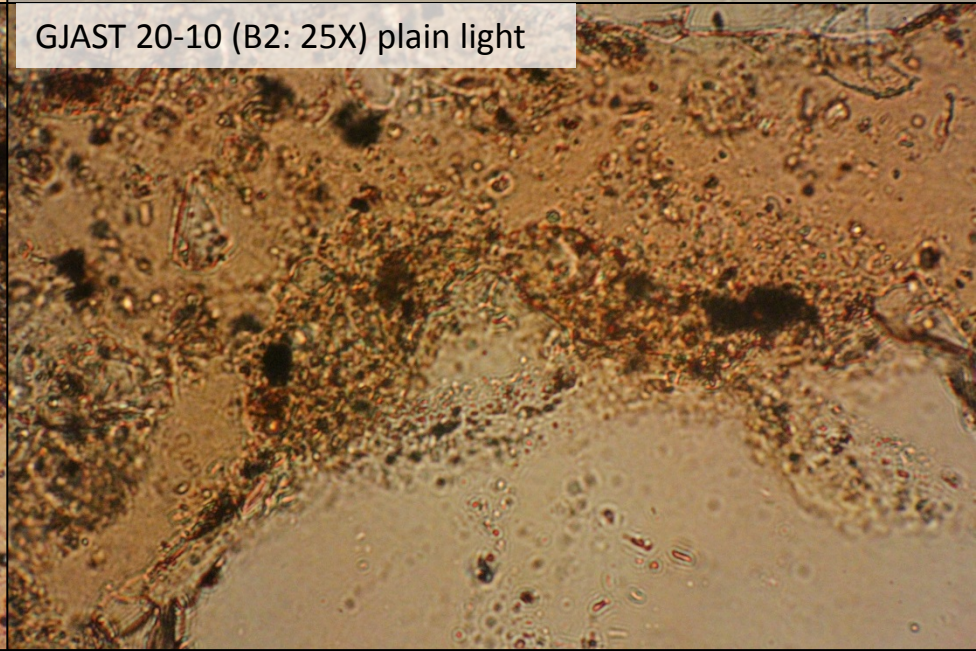
GJAST 20-10 (B2: 25X) fission track

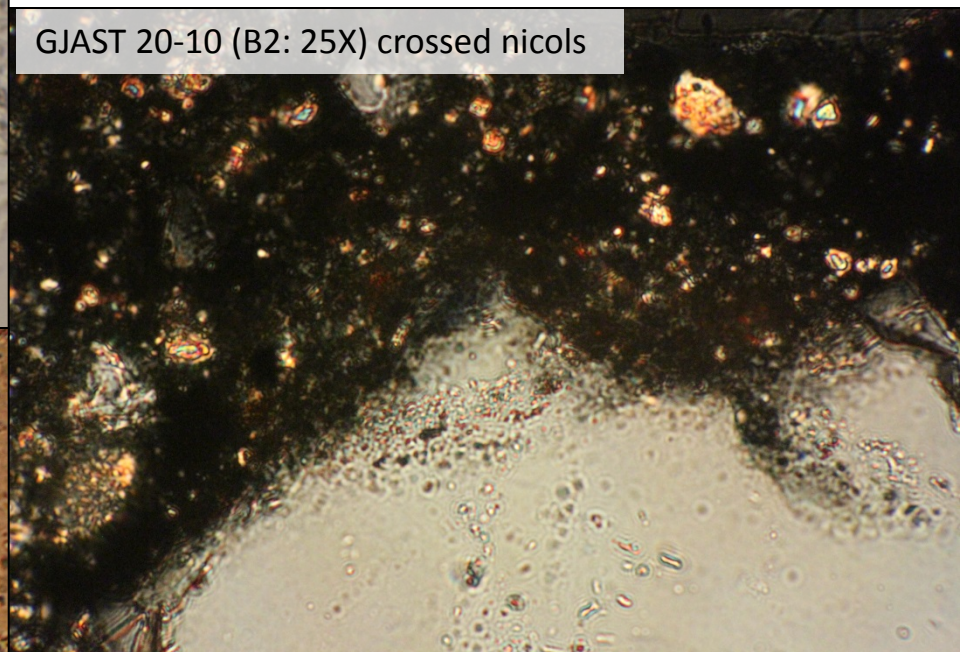
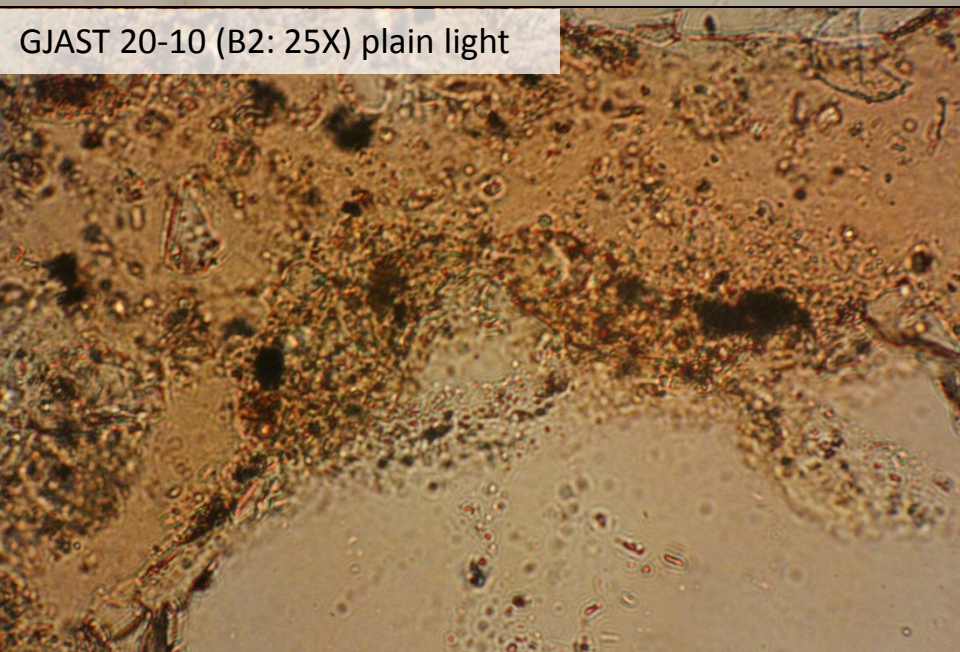
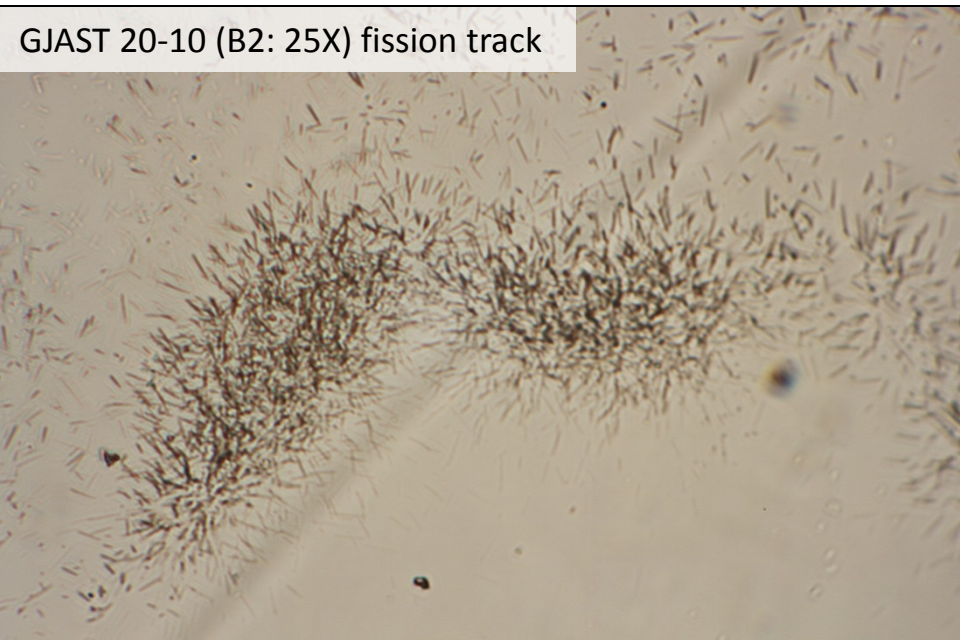


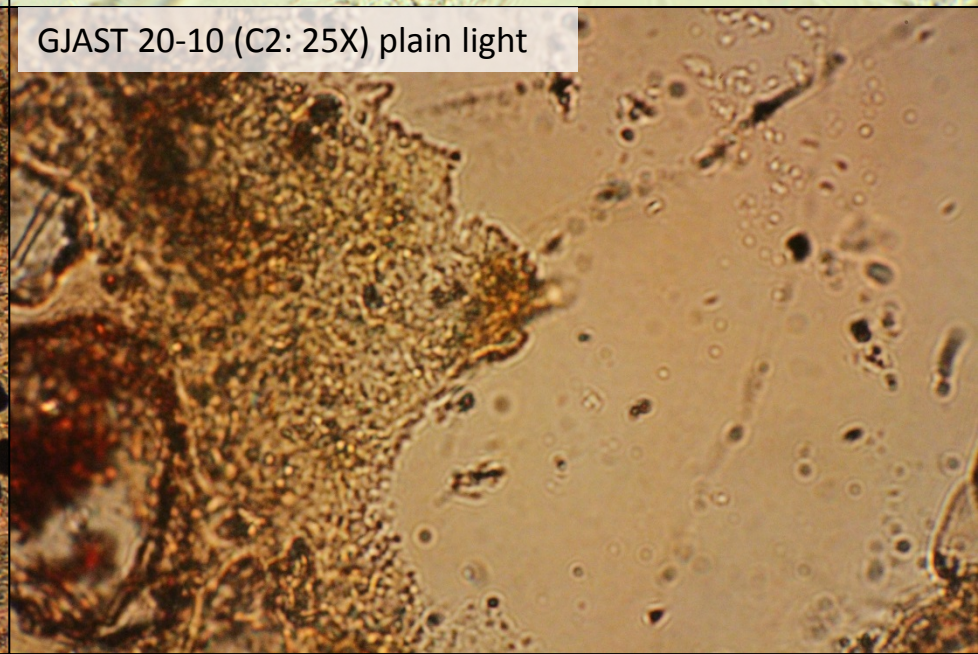
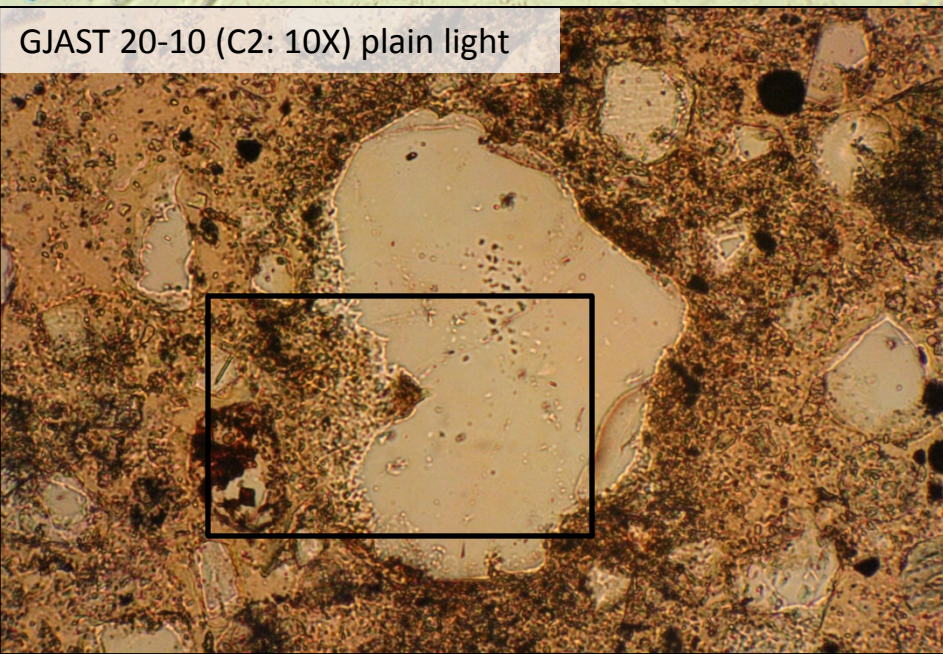
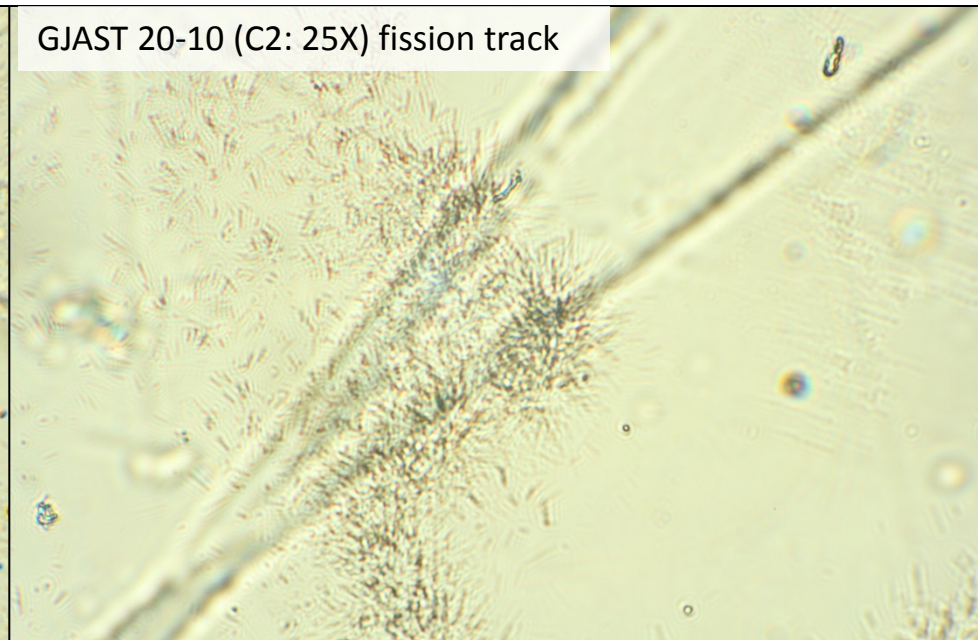
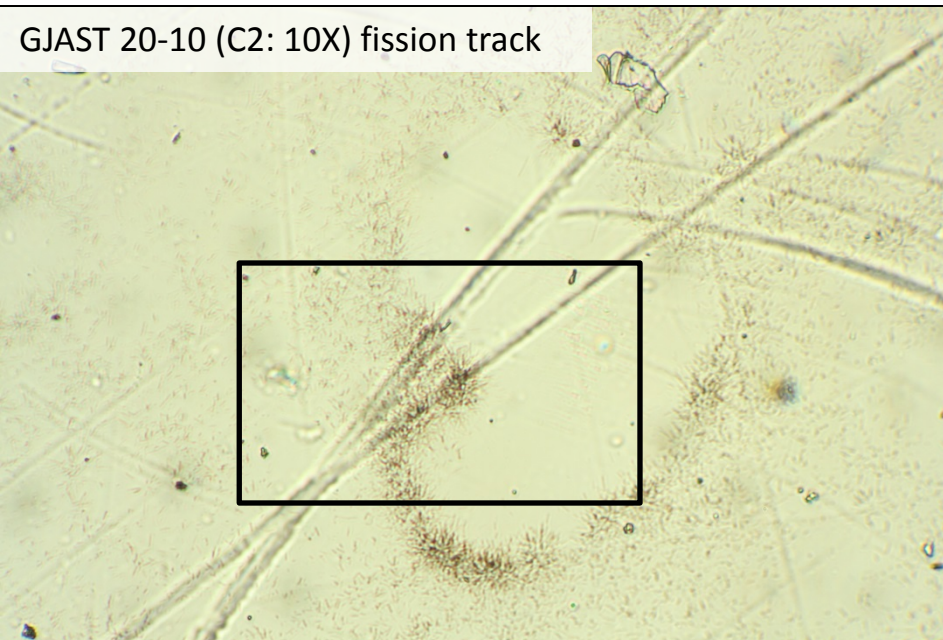
GJAST 20-10 (B2: 10X) plain light

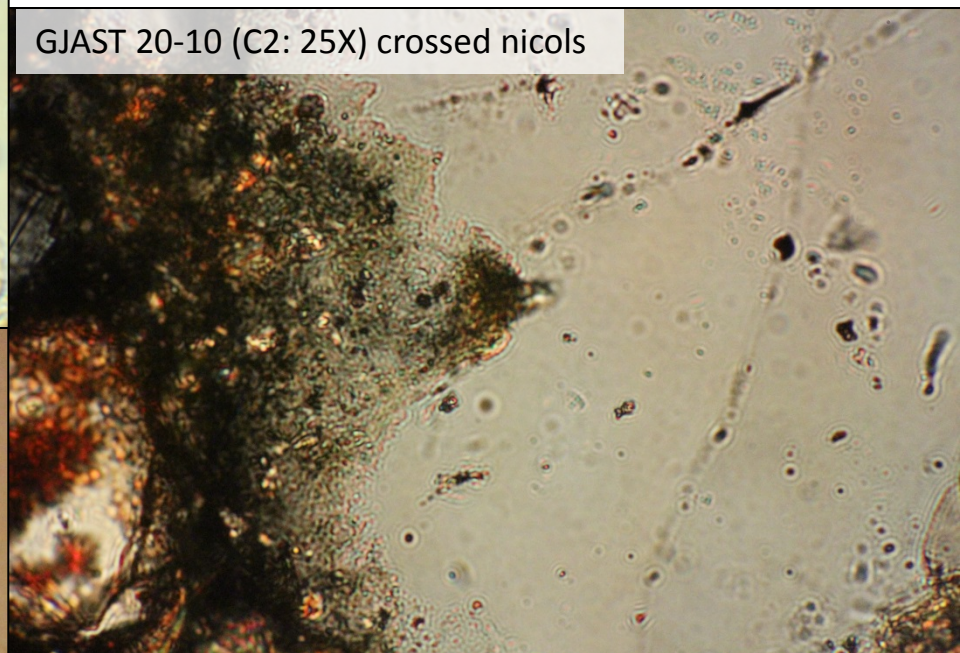
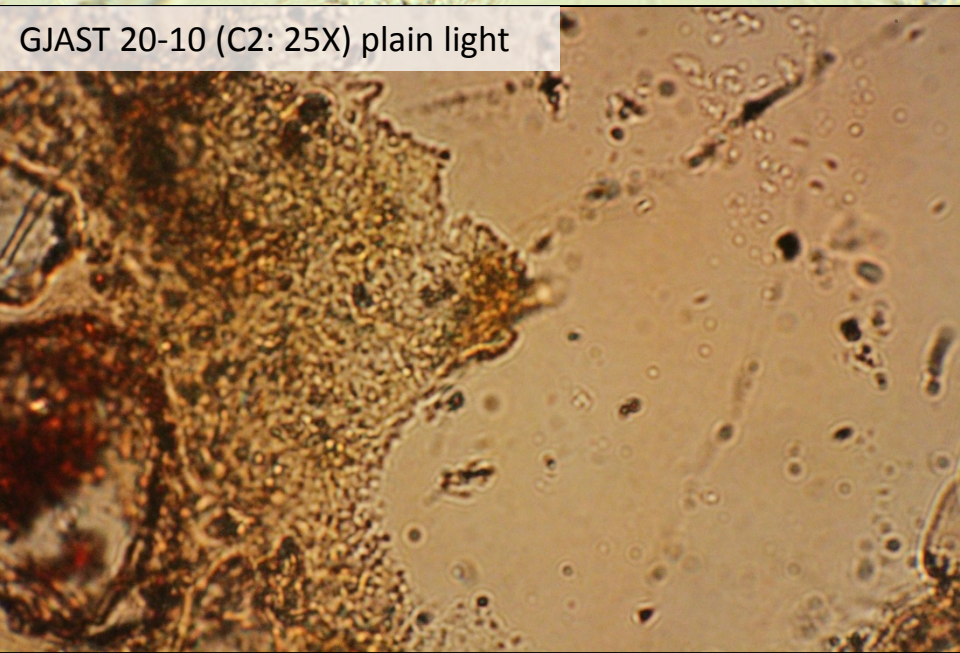
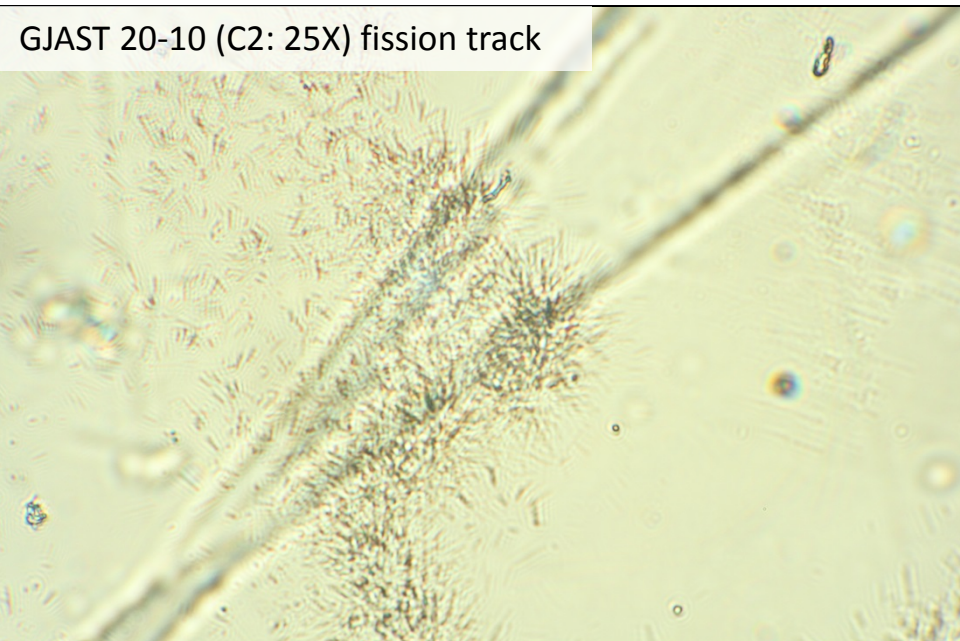


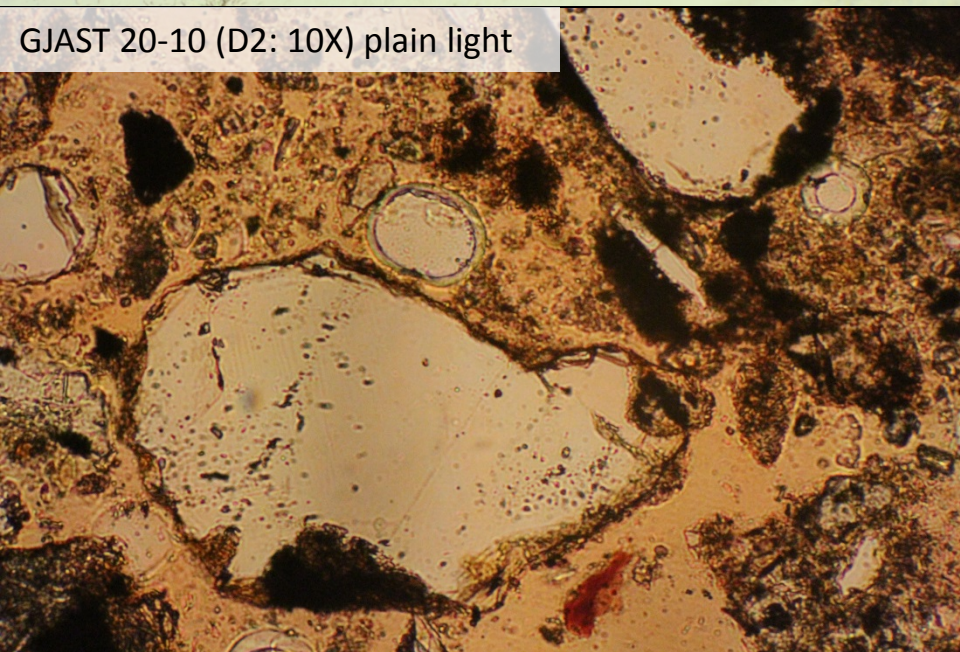
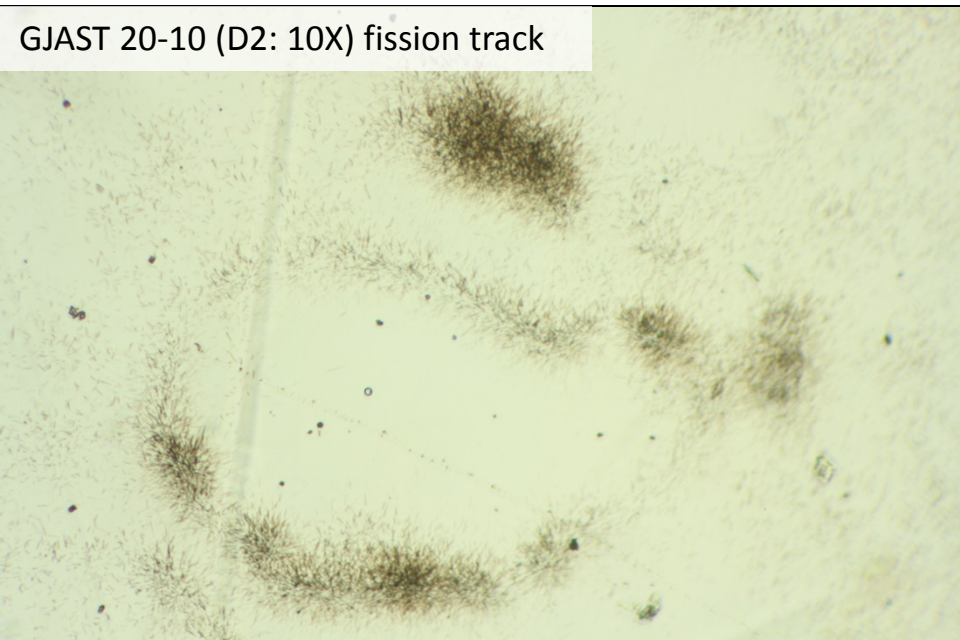
GJAST 20-10 (B2: 25X) plain light



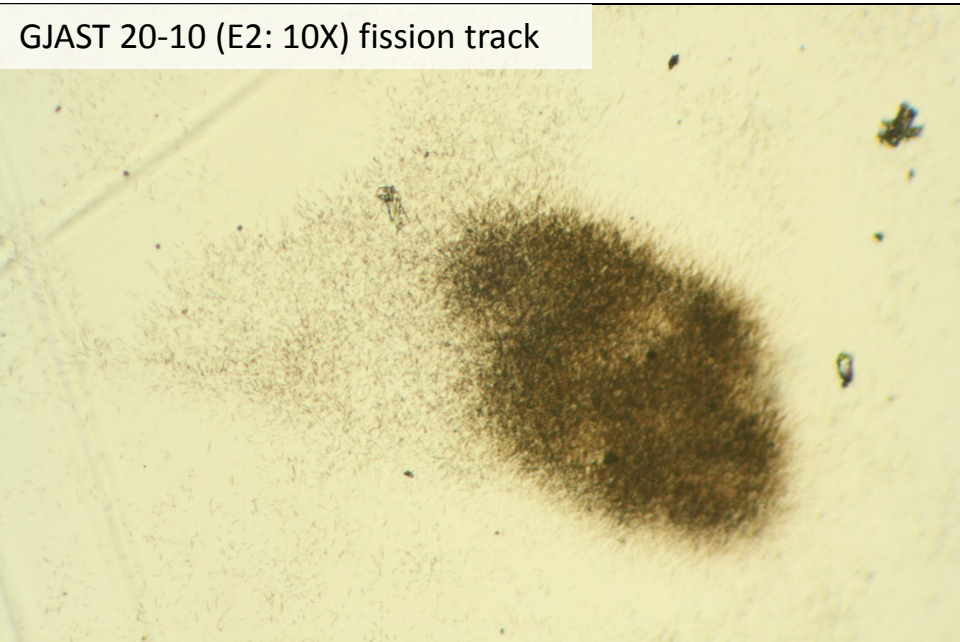




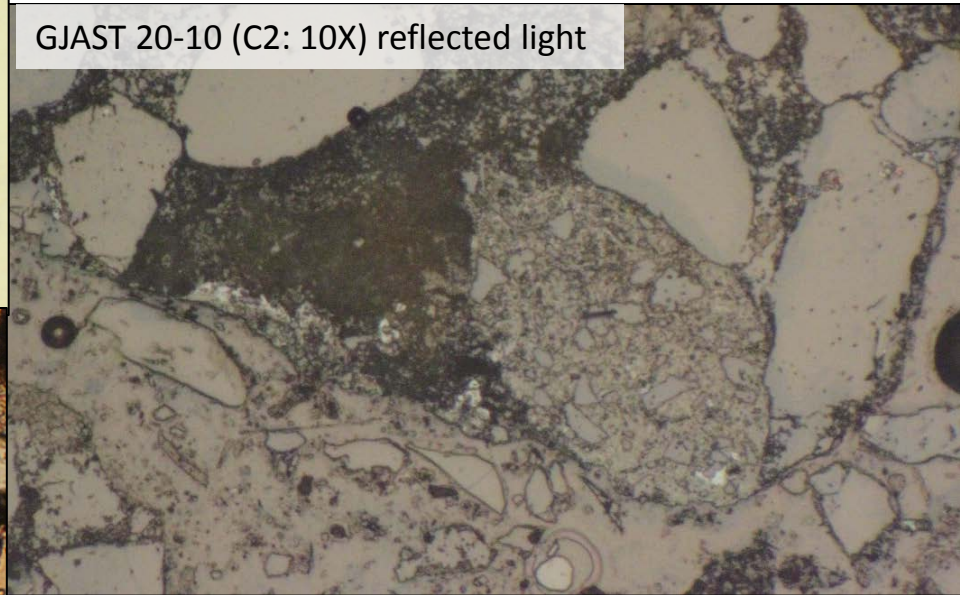




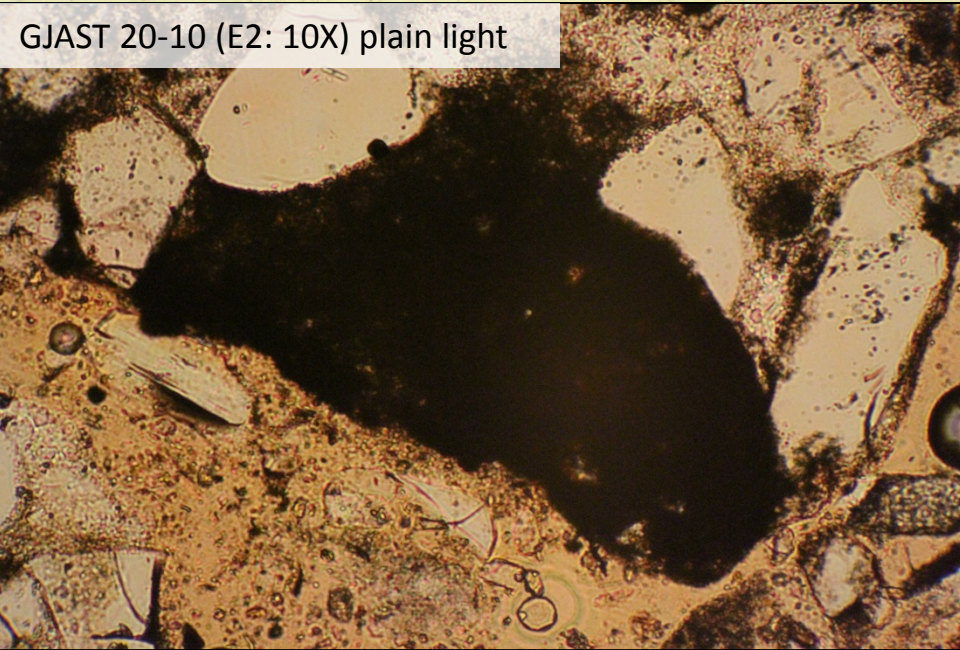
GJAST 20-10 (E2: 10X) fission track

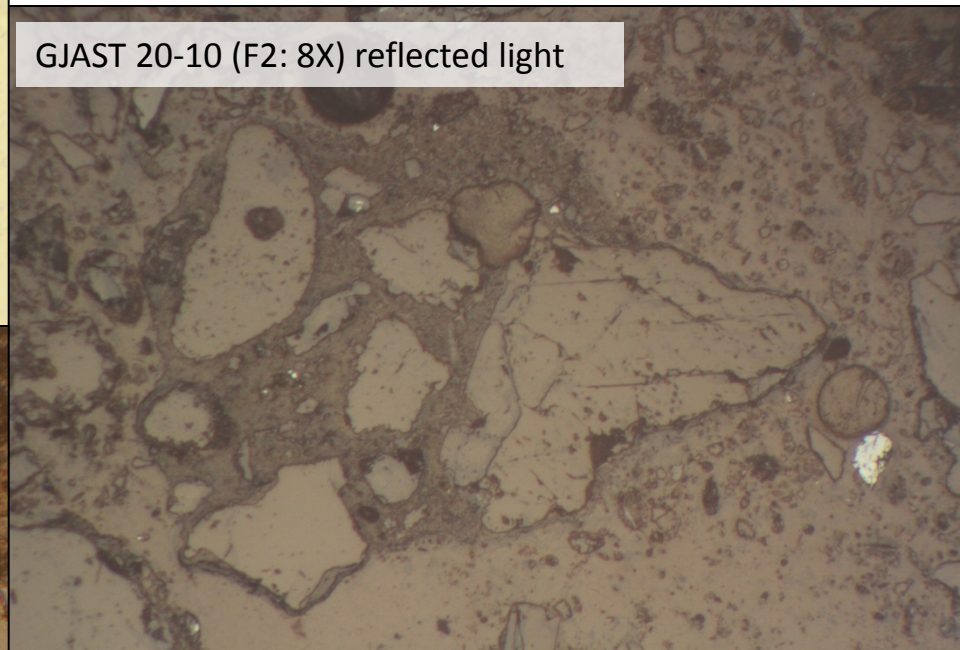
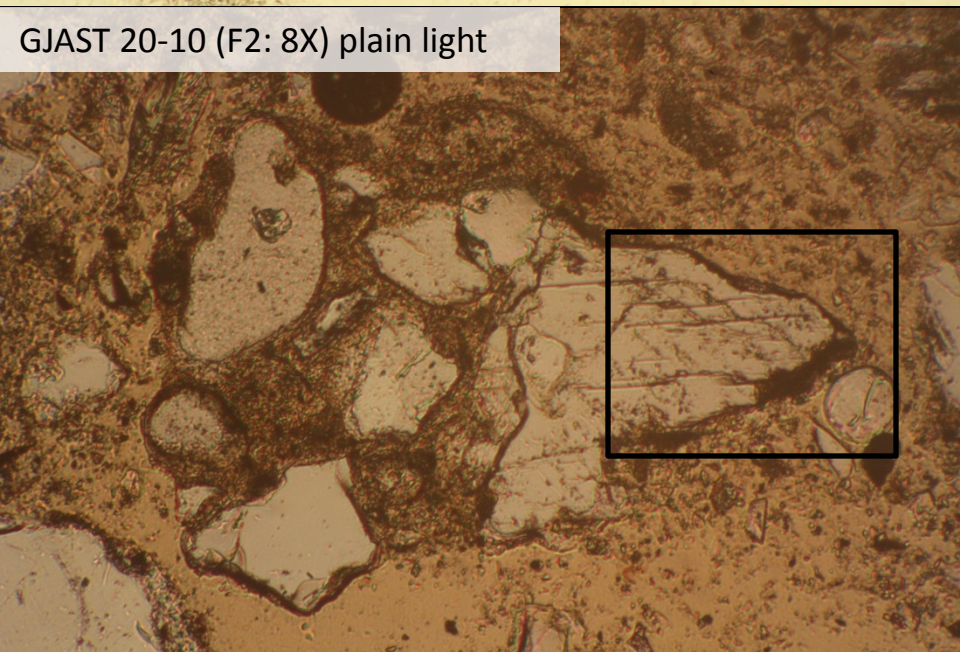
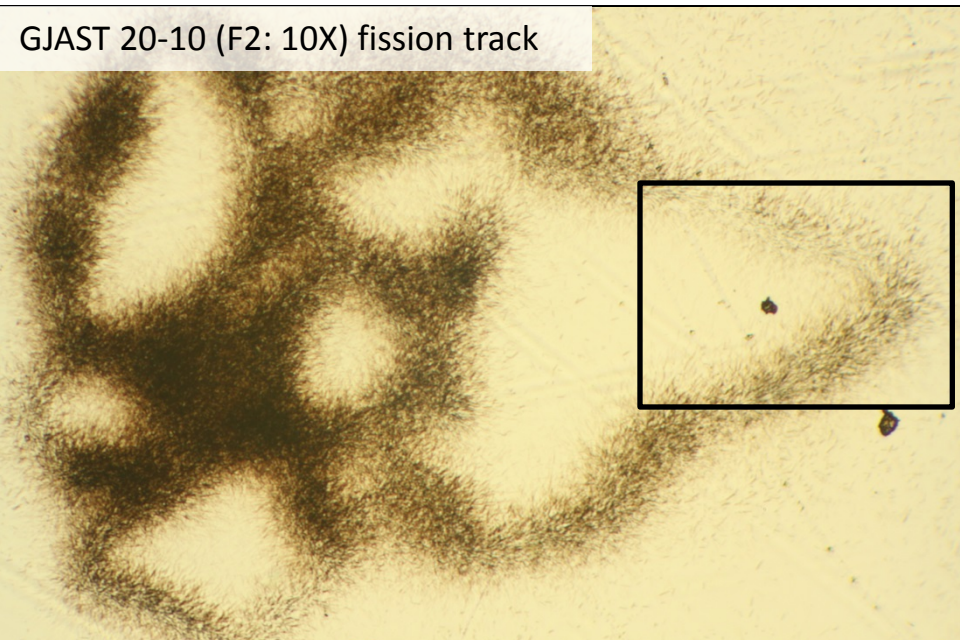


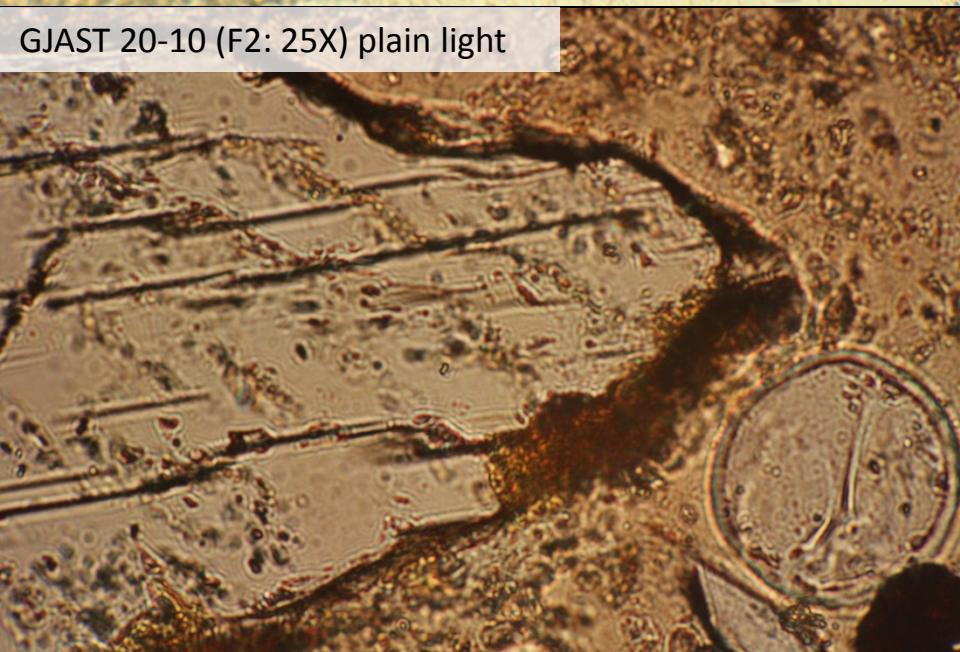
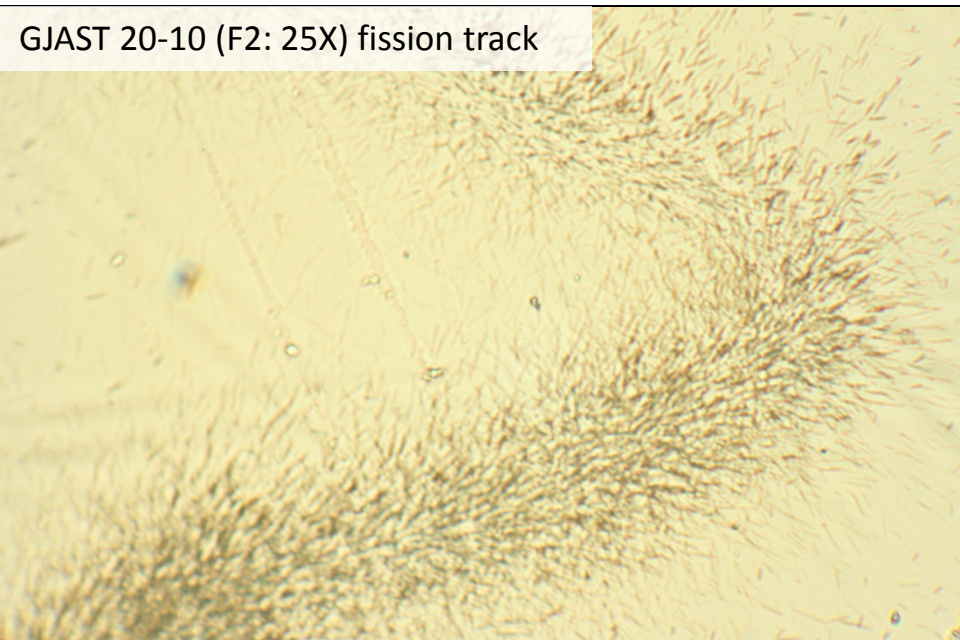
GJAST 20-10 (C2: 10X) reflected light



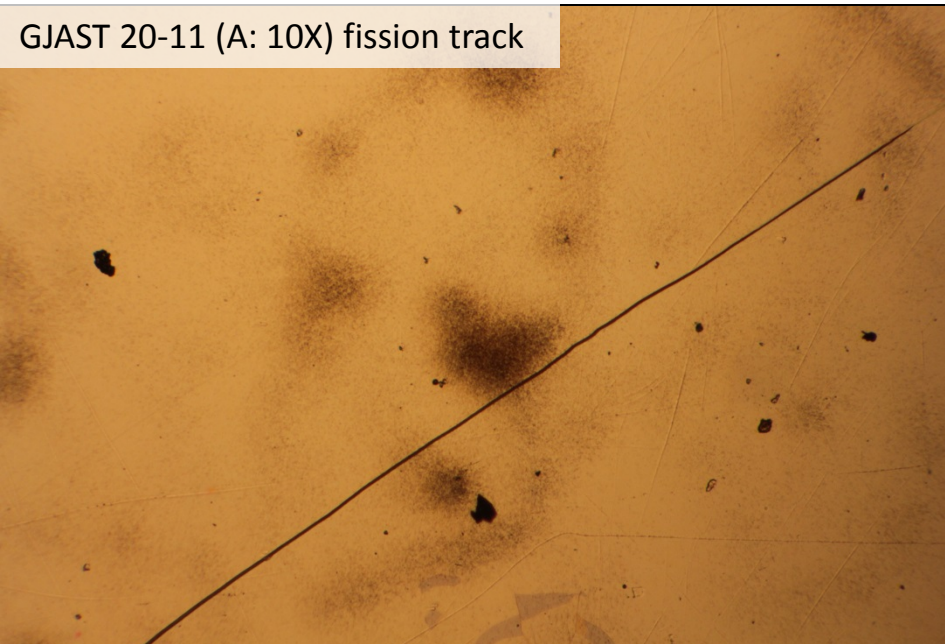
GJAST 20-10 (E2: 10X) plain light



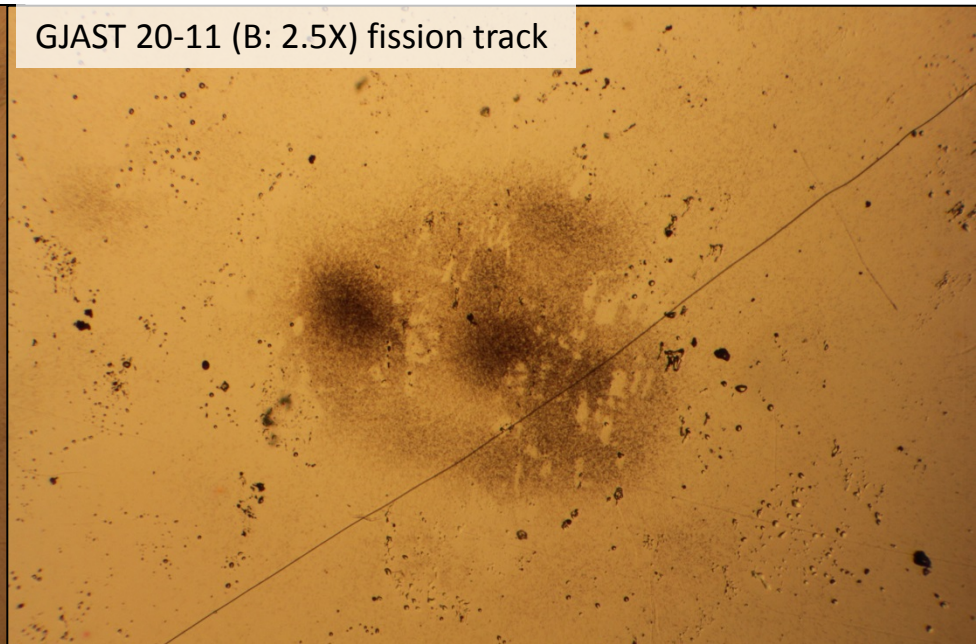




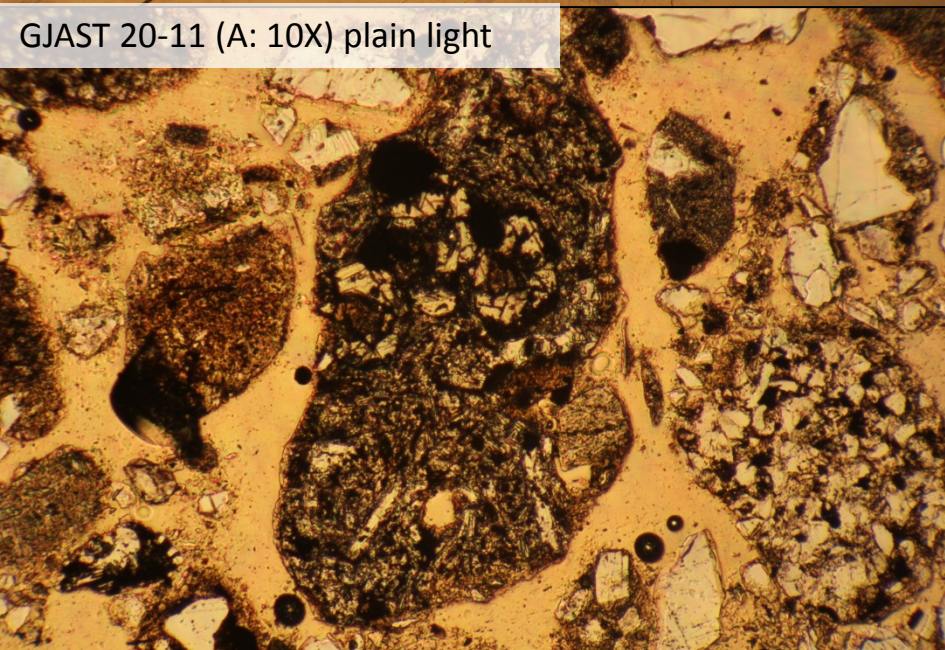
GJAST 20-11 (A: 10X) fission track



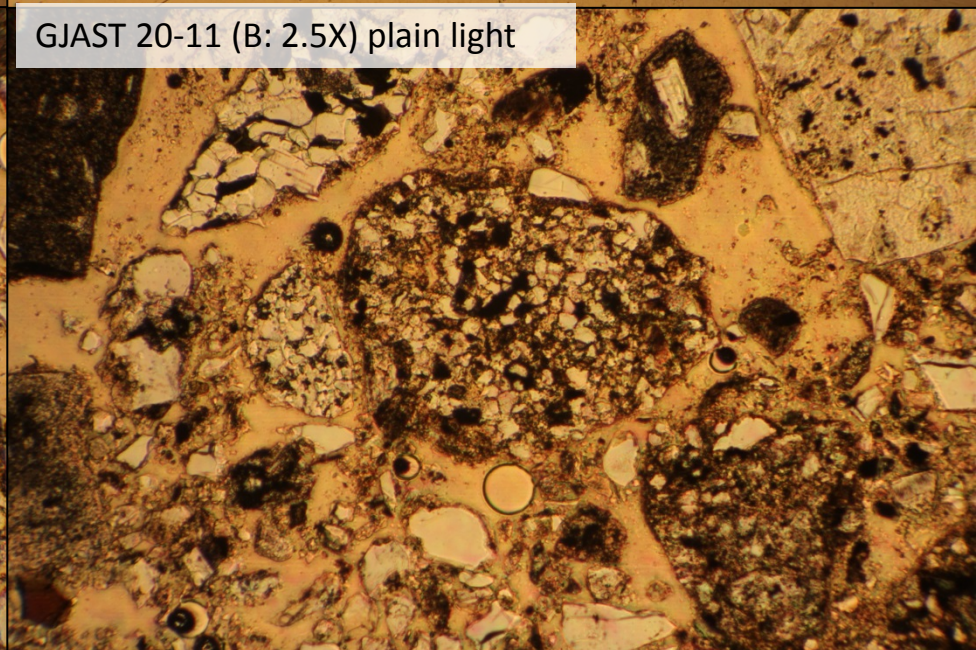
GJAST 20-11 (B: 2.5X) fission track



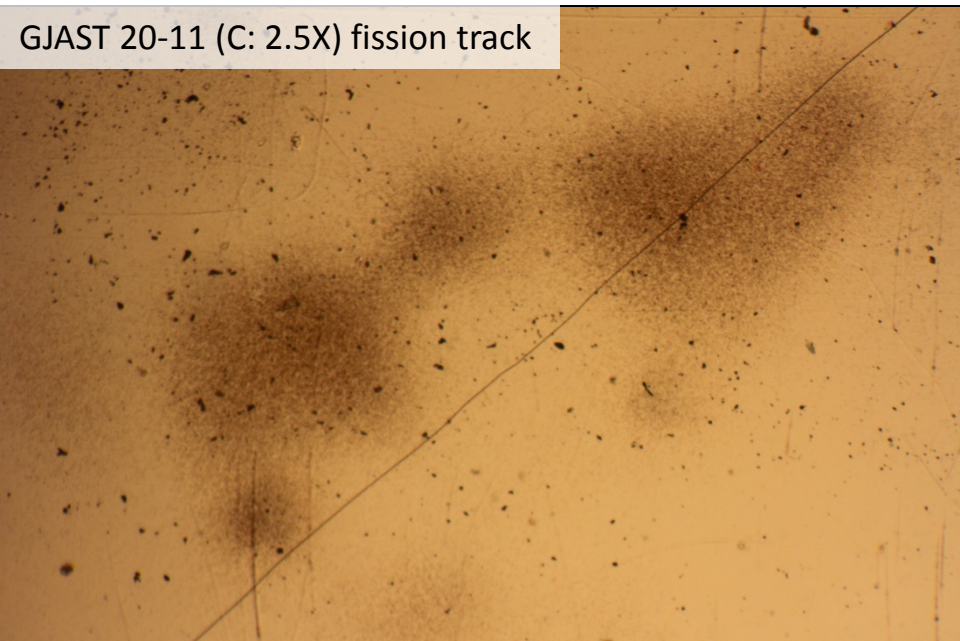
GJAST 20-11 (A: 10X) plain light



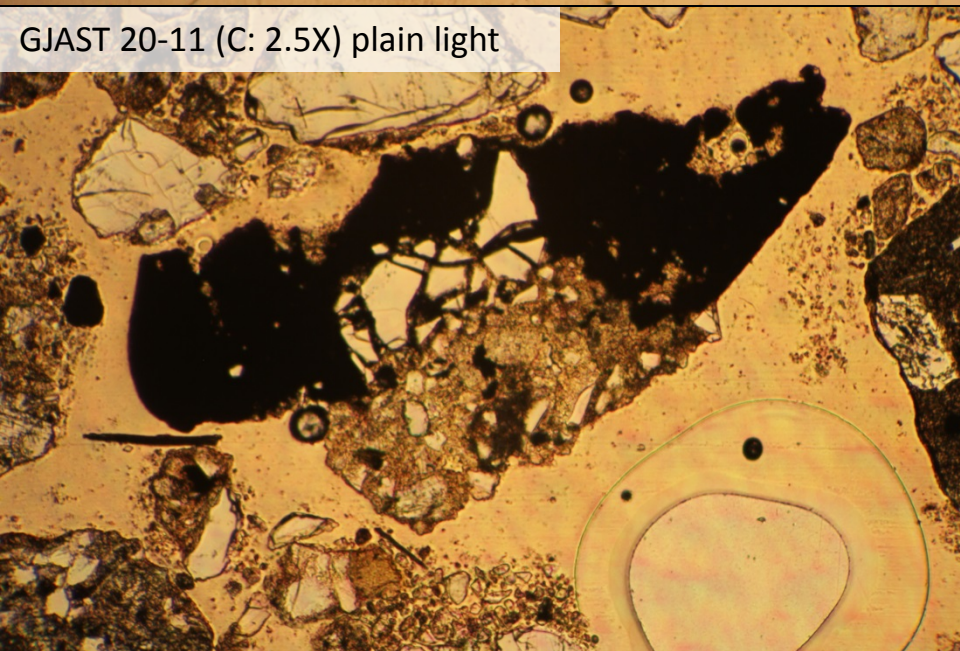
GJAST 20-11 (B: 2.5X) plain light



GJAST 20-11 (C: 2.5X) fission track



GJAST 20-11 (C: 2.5X) plain light



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Appendix F

Reactive Transport Modeling

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Example PEST Template File

```
ptf $
DATABASE C:\Program Files (x86)\USGS\Phreeqc Interactive 3.1.1-8288\database\phreeqcU_V_2011a.dat
USER_PUNCH 1
  -headings Total_U_ug/L Total_Alkalinity_CaCO3_mg/L Total_Sulfate_mg/L Total_Calcium_mg/L
  Total_Sodium_mg/L Total_Magnesium_mg/L Total_Potassium_mg/L
  -start
20 PUNCH (TOT("U")*238000000)
30 PUNCH (ALK*100100/2)
40 PUNCH (TOT("S(6)")*96000)
50 PUNCH (TOT("Ca")*40078)
60 PUNCH (TOT("Na")*22990)
70 PUNCH (TOT("Mg")*24305)
80 PUNCH (TOT("K")*39098)
  -end
TITLE Burdock Transport Simulations
```

SOLUTION SPREAD

Description		Number	pH	pe	Temp	O(0)	Alkalinity	As	B	Ba	Ca
Cl	F	Fe	K	Mg	Mn	Na	Se	S(6)	Sr	U	V
Zn	Si										
mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l as	CaCO3 ug/l	mg/l	mg/l	mg/l	mg/l
mg/l						ug/l	mg/l as SO4	mg/l	ug/l	ug/l	mg/l
SPF		0	7.0	4	25		313				192
86.7			8.82	62.8		298		918		0.0	

SOLUTION SPREAD

Description		Number	pH	pe	Temp	O(0)	Alkalinity	As	B	Ba	Ca
Cl	F	Fe	K	Mg	Mn	Na	Se	S(6)	Sr	U	V
Zn	Si										
mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l as ug/l	CaCO3 ug/l as SO4	mg/l	mg/l	mg/l	mg/l
mg/l											
0.83PV		1-21	7.6	4	12		101				530
87.9			35.6	328	0.063	1640		4180		2002	

SURFACE MASTER SPECIES

$$\frac{\text{Gc}_{\text{ss}}}{\text{Gc}_{\text{s}}} = \frac{\text{Gc}_{\text{ssOH}}}{\text{Gc}_{\text{sOH}}}$$

SURFACE SPECIES

$$\begin{aligned} \text{Gc_ssOH} &= \text{Gc_ssOH} \\ \log_k &0 \\ \text{Gc_ssOH} + \text{UO}_2 + 2 &= \text{Gc_ssOUO}_2 + \text{H} + \\ \log_k &\$gcssk \quad \$ \\ \text{Gc_sOH} &= \text{Gc_sOH} \\ \log_k &0 \\ \text{Gc_sOH} + \text{UO}_2 + 2 &= \text{Gc_sOUO}_2 + \text{H} + \end{aligned}$$

log_k \$gcsk \$

SURFACE 1-21 Equilibrate the column with 8-4S water from 1984 analysis (RI/FS table 4-3)

fix log ks and estimate site densities

-equilibrate with solution 1

Gc_s \$gcssd \$

Gc_ss \$gcssd \$

-no_edl

EQUILIBRIUM_PHASES 1-21

Calcite 1.32 10

Gypsum 0 \$gyp \$

EXCHANGE 1-21

X \$exch \$

-equilibrate with solution 1

-pitzer_exchange_gammas true

SELECTED_OUTPUT 1

-file final.out

-high_precision true

-reset false

-simulation true

-step true

-pH true

TRANSPORT # 16 cumulative shifts

-cells 10

-shifts 16

-time_step 1275.000 # seconds

-lengths 10*0.0213

-dispersivities 10*\$disp \$

-stagnant 1 \$stagdiff \$ 0.287 \$stagnant \$

-print_cells 10

-punch_cells 10

END

TRANSPORT # 21 cumulative shifts

-cells 10

-shifts 5

-time_step 2039.999 # seconds

-lengths 10*0.0213

-dispersivities 10*\$disp \$

-stagnant 1 \$stagdiff \$ 0.287 \$stagnant \$

-print_cells 10

-punch_cells 10

-punch_frequency 1

END

TRANSPORT # 28 cumulative shifts

-cells 10

-shifts 7

-time_step 1457.142 # seconds

-lengths 10*0.0213

-dispersivities 10*\$disp \$

-stagnant 1 \$stagdiff \$ 0.287 \$stagnant \$

-print_cells 10

-punch_cells 10
-punch_frequency 1
END

TRANSPORT # 120 cumulative shifts

-cells 10
-shifts 92
-time_step 1219.565 # seconds
-lengths 10*0.0213
-dispersivities 10*\$disp \$
-stagnant 1 \$stagdiff \$ 0.287 \$stagpore \$
-print_cells 10
-punch_cells 10
-punch_frequency 1
END

TRANSPORT # 142 cumulative shifts

-cells 10
-shifts 22
-time_step 1854.545 # seconds
-lengths 10*0.0213
-dispersivities 10*\$disp \$
-stagnant 1 \$stagdiff \$ 0.287 \$stagpore \$
-print_cells 10
-punch_cells 10
-punch_frequency 1
END

TRANSPORT # 181 cumulative shifts

-cells 10
-shifts 39
-time_step 1569.230 # seconds
-lengths 10*0.0213
-dispersivities 10*\$disp \$
-stagnant 1 \$stagdiff \$ 0.287 \$stagpore \$
-print_cells 10
-punch_cells 10
-punch_frequency 1
END

TRANSPORT # 252 cumulative shifts

-cells 10
-shifts 71
-time_step 1149.295 # seconds
-lengths 10*0.0213
-dispersivities 10*\$disp \$
-stagnant 1 \$stagdiff \$ 0.287 \$stagpore \$
-print_cells 10
-punch_cells 10
-punch_frequency 1
END

TRANSPORT # 259 cumulative shifts - first stop flow

-cells 10
-shifts 7
-time_step 32314.308 # seconds
-lengths 10*0.0213
-dispersivities 10*\$disp \$

```

-stagnant      1 $stagdiff $ 0.287 $stagpore $
-print_cells   10
-punch_cells   10
-punch_frequency 1
END

```

TRANSPORT # 378 cumulative shifts

```

-cells         10
-shifts        119
-time_step     1199.999 # seconds
-lengths       10*0.0213
-dispersivities 10*$disp $
-stagnant      1 $stagdiff $ 0.287 $stagpore $
-print_cells   10
-punch_cells   10
-punch_frequency 1
END

```

TRANSPORT # 384 cumulative shifts

```

-cells         10
-shifts         6
-time_step     1699.999 # seconds
-lengths       10*0.0213
-dispersivities 10*$disp $
-stagnant      1 $stagdiff $ 0.287 $stagpore $
-print_cells   10
-punch_cells   10
-punch_frequency 1
END

```

TRANSPORT # 494 cumulative shifts

```

-cells         10
-shifts        110
-time_step     1205.454 # seconds
-lengths       10*0.0213
-dispersivities 10*$disp $
-stagnant      1 $stagdiff $ 0.287 $stagpore $
-print_cells   10
-punch_cells   10
-punch_frequency 1
END

```

TRANSPORT # 502 cumulative shifts - second stop flow

```

-cells         10
-shifts         8
-time_step     109327.517 # seconds
-lengths       10*0.0213
-dispersivities 10*$disp $
-stagnant      1 $stagdiff $ 0.287 $stagpore $
-print_cells   10
-punch_cells   10
-punch_frequency 1
END

```

TRANSPORT # 698 cumulative shifts

```

-cells         10
-shifts        196
-time_step     1196.938 # seconds

```

```
-lengths      10*0.0213
-dispersivities 10*$disp $
-stagnant      1 $stagdiff $ 0.287 $stagnant $
-print_cells   10
-punch_cells   10
-punch_frequency 1
END
```


Example PEST Control File

```

pcf
* control data
restart estimation
  9 580 3 0 7
  1 1 single point 1 0 0
  5.0 2.0 0.3 0.01 10
  3.0 3.0 0.001
  0.1
  30 0.005 4 3 0.01 3
  1 1 1
* parameter groups
logk relative 0.01 0.0 switch 2.0 parabolic
smallnum relative 0.01 0.0 switch 2.0 parabolic
largenum relative 0.01 0.0 switch 2.0 parabolic
* parameter data
gcsk none factor 5.41601 -20.0 20.0 logk 1.0000 0.0000 1
gcssk none factor 7.33478 -20.0 20.0 logk 1.0000 0.0000 1
gcssd log factor 3.192087E-04 5e-30 5.0 smallnum 1.0000 0.0000 1
gcsssd log factor 6.577990E-05 5e-30 5.0 smallnum 1.0000 0.0000 1
stagdiff log factor 4.207449E-06 5e-30 5.0 smallnum 1.0000 0.0000 1
gyp log factor 0.633573 5e-30 5.0 largenum 1.0000 0.0000 1
exch log factor 0.174406 5e-30 25.0 largenum 1.0000 0.0000 1
disp log factor 8.993204E-03 5e-30 5.0 largenum 1.0000 0.0000 1
stagpore log factor 0.122385 5e-30 0.8 largenum 1.0000 0.0000 1
* observation groups
U
Alk
S
Ca
Na
Mg
K
* observation data
1-8U 2002 1.0 U
1-8Alk 101 1.0 Alk
1-8S 4180 1.0 S
1-8Ca 530 1.0 Ca
1-8Na 1640 1.0 Na
1-8Mg 328 1.0 Mg
1-8K 35.6 1.0 K
1-16U 4254 1.0 U
1-16Alk 152 1.0 Alk
1-16S 2830 1.0 S
1-16Ca 563 1.0 Ca
1-16Na 582 1.0 Na
1-16Mg 288 1.0 Mg
1-16K 25.4 1.0 K
2-5U 7749 1.0 U
2-5Alk 204 1.0 Alk
2-5S 2670 1.0 S
2-5Ca 663 1.0 Ca
2-5Na 405 1.0 Na
2-5Mg 335 1.0 Mg
2-5K 27.7 1.0 K
3-7U 5927 1.0 U
3-7Alk 215 1.0 Alk

```

3-7S	2630	1.0	S
3-7Ca	613	1.0	Ca
3-7Na	354	1.0	Na
3-7Mg	304	1.0	Mg
3-7K	22.1	1.0	K
4-8U	4241	1.0	U
4-8Alk	237	1.0	Alk
4-8S	2530	1.0	S
4-8Ca	589	1.0	Ca
4-8Na	335	1.0	Na
4-8Mg	278	1.0	Mg
4-8K	20.6	1.0	K
4-33U	1799.5	1.0	U
4-33Alk	282	1.0	Alk
4-33S	2010	1.0	S
4-33Ca	680	1.0	Ca
4-33Na	349	1.0	Na
4-33Mg	144	1.0	Mg
4-33K	20.1	1.0	K
4-42U	1580	1.0	U
4-42Alk	289	1.0	Alk
4-42S	1940	1.0	S
4-42Ca	629	1.0	Ca
4-42Na	330	1.0	Na
4-42Mg	109	1.0	Mg
4-42K	17.8	1.0	K
4-50U	1387	1.0	U
4-50Alk	290	1.0	Alk
4-50S	2010	1.0	S
4-50Ca	629	1.0	Ca
4-50Na	337	1.0	Na
4-50Mg	90.2	1.0	Mg
4-50K	17.8	1.0	K
4-59U	1144.3	1.0	U
4-59Alk	273	1.0	Alk
4-59S	2000	1.0	S
4-59Ca	644	1.0	Ca
4-59Na	332	1.0	Na
4-59Mg	78.5	1.0	Mg
4-59K	17.5	1.0	K
4-67U	1011.5	1.0	U
4-67Alk	293	1.0	Alk
4-67S	2000	1.0	S
4-67Ca	621	1.0	Ca
4-67Na	322	1.0	Na
4-67Mg	72.1	1.0	Mg
4-67K	17	1.0	K
4-76U	898.5	1.0	U
4-76Alk	292	1.0	Alk
4-76S	1940	1.0	S
4-76Ca	619	1.0	Ca
4-76Na	330	1.0	Na
4-76Mg	68.2	1.0	Mg
4-76K	16.9	1.0	K
4-84U	814.5	1.0	U
4-84Alk	283	1.0	Alk
4-84S	1970	1.0	S
4-84Ca	619	1.0	Ca

4-84Na	323	1.0	Na
4-84Mg	66.2	1.0	Mg
4-84K	16.2	1.0	K
4-92U	676.3	1.0	U
4-92Alk	303	1.0	Alk
4-92S	1950	1.0	S
4-92Ca	666	1.0	Ca
4-92Na	336	1.0	Na
4-92Mg	64.3	1.0	Mg
4-92K	16.5	1.0	K
5-6U	674	1.0	U
5-6Alk	296	1.0	Alk
5-6S	1960	1.0	S
5-6Ca	744	1.0	Ca
5-6Na	390	1.0	Na
5-6Mg	72.9	1.0	Mg
5-6K	20.6	1.0	K
5-11U	671.8	1.0	U
5-11Alk	282	1.0	Alk
5-11S	1970	1.0	S
5-11Ca	670	1.0	Ca
5-11Na	349	1.0	Na
5-11Mg	67.1	1.0	Mg
5-11K	17.8	1.0	K
5-16U	667.8	1.0	U
5-16Alk	280	1.0	Alk
5-16S	1960	1.0	S
5-16Ca	655	1.0	Ca
5-16Na	344	1.0	Na
5-16Mg	65.6	1.0	Mg
5-16K	18	1.0	K
5-22U	613.8	1.0	U
5-22Alk	289	1.0	Alk
5-22S	1990	1.0	S
5-22Ca	659	1.0	Ca
5-22Na	342	1.0	Na
5-22Mg	64.8	1.0	Mg
5-22K	18	1.0	K
6-6U	610.9	1.0	U
6-6Alk	234	1.0	Alk
6-6S	2030	1.0	S
6-6Ca	704	1.0	Ca
6-6Na	329	1.0	Na
6-6Mg	62.6	1.0	Mg
6-6K	16.4	1.0	K
6-13U	609.1	1.0	U
6-13Alk	231	1.0	Alk
6-13S	2000	1.0	S
6-13Ca	671	1.0	Ca
6-13Na	333	1.0	Na
6-13Mg	61.8	1.0	Mg
6-13K	16.2	1.0	K
6-20U	526.1	1.0	U
6-20Alk	233	1.0	Alk
6-20S	2020	1.0	S
6-20Ca	684	1.0	Ca
6-20Na	326	1.0	Na
6-20Mg	63.9	1.0	Mg

6-20K	15.3	1.0	K
6-26U	530.7	1.0	U
6-26Alk	239	1.0	Alk
6-26S	2020	1.0	S
6-26Ca	666	1.0	Ca
6-26Na	321	1.0	Na
6-26Mg	62.4	1.0	Mg
6-26K	14.8	1.0	K
6-33U	511.8	1.0	U
6-33Alk	247	1.0	Alk
6-33S	1980	1.0	S
6-33Ca	675	1.0	Ca
6-33Na	329	1.0	Na
6-33Mg	61.4	1.0	Mg
6-33K	14.1	1.0	K
6-39U	451.9	1.0	U
6-39Alk	255	1.0	Alk
6-39S	2030	1.0	S
6-39Ca	660	1.0	Ca
6-39Na	326	1.0	Na
6-39Mg	61.6	1.0	Mg
6-39K	14.1	1.0	K
7-9U	443.3	1.0	U
7-9Alk	274	1.0	Alk
7-9S	2000	1.0	S
7-9Ca	649	1.0	Ca
7-9Na	329	1.0	Na
7-9Mg	60.6	1.0	Mg
7-9K	13.8	1.0	K
7-28U	383.5	1.0	U
7-28Alk	264	1.0	Alk
7-28S	2020	1.0	S
7-28Ca	804	1.0	Ca
7-28Na	346	1.0	Na
7-28Mg	62.4	1.0	Mg
7-28K	15.2	1.0	K
7-36U	364.5	1.0	U
7-36Alk	272	1.0	Alk
7-36S	2020	1.0	S
7-36Ca	676	1.0	Ca
7-36Na	338	1.0	Na
7-36Mg	58.7	1.0	Mg
7-36K	12.9	1.0	K
7-45U	334.3	1.0	U
7-45Alk	284	1.0	Alk
7-45S	1970	1.0	S
7-45Ca	652	1.0	Ca
7-45Na	328	1.0	Na
7-45Mg	56.83	1.0	Mg
7-45K	12.2	1.0	K
7-53U	310.1	1.0	U
7-53Alk	288	1.0	Alk
7-53S	1980	1.0	S
7-53Ca	639	1.0	Ca
7-53Na	316	1.0	Na
7-53Mg	58.39	1.0	Mg
7-53K	11.3	1.0	K
7-62U	293	1.0	U

7-62Alk	296	1.0	Alk
7-62S	1950	1.0	S
7-62Ca	617	1.0	Ca
7-62Na	307	1.0	Na
7-62Mg	57	1.0	Mg
7-62K	10.8	1.0	K
7-71U	277	1.0	U
7-71Alk	293	1.0	Alk
7-71S	1990	1.0	S
7-71Ca	636	1.0	Ca
7-71Na	314	1.0	Na
7-71Mg	57.7	1.0	Mg
7-71K	10.7	1.0	K
8-7U	421.9	1.0	U
8-7Alk	271	1.0	Alk
8-7S	1870	1.0	S
8-7Ca	651	1.0	Ca
8-7Na	332	1.0	Na
8-7Mg	62	1.0	Mg
8-7K	10.7	1.0	K
9-8U	393.3	1.0	U
9-8Alk	285	1.0	Alk
9-8S	1910	1.0	S
9-8Ca	623	1.0	Ca
9-8Na	332	1.0	Na
9-8Mg	61.5	1.0	Mg
9-8K	10.4	1.0	K
9-17U	367.1	1.0	U
9-17Alk	301	1.0	Alk
9-17S	1880	1.0	S
9-17Ca	624	1.0	Ca
9-17Na	314	1.0	Na
9-17Mg	62.4	1.0	Mg
9-17K	9.94	1.0	K
9-25U	324.1	1.0	U
9-25Alk	319	1.0	Alk
9-25S	1870	1.0	S
9-25Ca	638	1.0	Ca
9-25Na	321	1.0	Na
9-25Mg	62.4	1.0	Mg
9-25K	9.69	1.0	K
9-34U	302.7	1.0	U
9-34S	1790	1.0	S
9-34Ca	633	1.0	Ca
9-34Na	317	1.0	Na
9-34Mg	62	1.0	Mg
9-34K	9.52	1.0	K
9-42U	283.9	1.0	U
9-42Alk	317	1.0	Alk
9-42S	1810	1.0	S
9-42Ca	646	1.0	Ca
9-42Na	321	1.0	Na
9-42Mg	61.5	1.0	Mg
9-42K	9.48	1.0	K
9-51U	282.5	1.0	U
9-51Alk	320	1.0	Alk
9-51S	1820	1.0	S
9-51Ca	637	1.0	Ca

9-51Na	324	1.0	Na
9-51Mg	60.1	1.0	Mg
9-51K	9.68	1.0	K
9-59U	277.3	1.0	U
9-59Alk	308	1.0	Alk
9-59S	1850	1.0	S
9-59Ca	647	1.0	Ca
9-59Na	314	1.0	Na
9-59Mg	56.8	1.0	Mg
9-59K	9.02	1.0	K
9-68U	233.1	1.0	U
9-68Alk	306	1.0	Alk
9-68S	1840	1.0	S
9-68Ca	642	1.0	Ca
9-68Na	314	1.0	Na
9-68Mg	56.4	1.0	Mg
9-68K	9	1.0	K
9-76U	199.1	1.0	U
9-76Alk	322	1.0	Alk
9-76S	1820	1.0	S
9-76Ca	622	1.0	Ca
9-76Na	312	1.0	Na
9-76Mg	56.6	1.0	Mg
9-76K	8.86	1.0	K
9-85U	193.7	1.0	U
9-85Alk	325	1.0	Alk
9-85S	1810	1.0	S
9-85Ca	622	1.0	Ca
9-85Na	306	1.0	Na
9-85Mg	56	1.0	Mg
9-85K	8.56	1.0	K
9-93U	170.3	1.0	U
9-93Alk	325	1.0	Alk
9-93S	1750	1.0	S
9-93Ca	607	1.0	Ca
9-93Na	310	1.0	Na
9-93Mg	54.7	1.0	Mg
9-93K	8.23	1.0	K
9-102U	152.5	1.0	U
9-102Alk	320	1.0	Alk
9-102S	1800	1.0	S
9-102Ca	609	1.0	Ca
9-102Na	307	1.0	Na
9-102Mg	54.6	1.0	Mg
9-102K	8.3	1.0	K
9-110U	151.3	1.0	U
9-110Alk	320	1.0	Alk
9-110S	1820	1.0	S
9-110Ca	620	1.0	Ca
9-110Na	308	1.0	Na
9-110Mg	55.1	1.0	Mg
9-110K	8.35	1.0	K
9-119U	137.5	1.0	U
9-119Alk	323	1.0	Alk
9-119S	1800	1.0	S
9-119Ca	616	1.0	Ca
9-119Na	311	1.0	Na
9-119Mg	53.6	1.0	Mg

9-119K	8.42	1.0	K	
10-6U	122.7	1.0	U	
10-6Alk	273	1.0	Alk	
10-6S	1840	1.0	S	
10-6Ca	702	1.0	Ca	
10-6Na	314	1.0	Na	
10-6Mg	54.8	1.0	Mg	
10-6K	8.96	1.0	K	
11-8U	119.7	1.0	U	
11-8Alk	306	1.0	Alk	
11-8S	1830	1.0	S	
11-8Ca	634	1.0	Ca	
11-8Na	312	1.0	Na	
11-8Mg	54	1.0	Mg	
11-8K	8.39	1.0	K	
11-17U	118.9	1.0	U	
11-17Alk	310	1.0	Alk	
11-17S	1800	1.0	S	
11-17Ca	640	1.0	Ca	
11-17Na	313	1.0	Na	
11-17Mg	53.8	1.0	Mg	
11-17K	8.23	1.0	K	
11-25U	106.2	1.0	U	
11-25Alk	310	1.0	Alk	
11-25S	1800	1.0	S	
11-25Ca	628	1.0	Ca	
11-25Na	313	1.0	Na	
11-25Mg	54.3	1.0	Mg	
11-25K	8.82	1.0	K	
11-34U	101.4	1.0	U	
11-34Alk	311	1.0	Alk	
11-34S	1800	1.0	S	
11-34Ca	604	1.0	Ca	
11-34Na	309	1.0	Na	
11-34Mg	52.1	1.0	Mg	
11-34K	8.53	1.0	K	
11-42U	95.4	1.0	U	
11-42Alk	315	1.0	Alk	
11-42S	1790	1.0	S	
11-42Ca	598	1.0	Ca	
11-42Na	310	1.0	Na	
11-42Mg	51.8	1.0	Mg	
11-42K	8.34	1.0	K	
11-51U	95.7	1.0	U	
11-51Alk	313	1.0	Alk	
11-51S	1790	1.0	S	
11-51Ca	600	1.0	Ca	
11-51Na	306	1.0	Na	
11-51Mg	51.8	1.0	Mg	
11-51K	8.21	1.0	K	
11-59U	91	1.0	U	
11-59Alk	315	1.0	Alk	
11-59S	1790	1.0	S	
11-59Ca	629	1.0	Ca	
11-59Na	320	1.0	Na	
11-59Mg	53.3	1.0	Mg	
11-59K	8.86	1.0	K	
11-68U	85.2	1.0	U	

11-68Alk	295	1.0	Alk
11-68S 1820	1.0	S	
11-68Ca 637	1.0	Ca	
11-68Na 313	1.0	Na	
11-68Mg	55	1.0	Mg
11-68K 8.88	1.0	K	
11-76U 78.5	1.0	U	
11-76Alk	299	1.0	Alk
11-76S 1800	1.0	S	
11-76Ca 647	1.0	Ca	
11-76Na 325	1.0	Na	
11-76Mg	55	1.0	Mg
11-76K 8.66	1.0	K	
11-85U 79.4	1.0	U	
11-85Alk	301	1.0	Alk
11-85S 1830	1.0	S	
11-85Ca 634	1.0	Ca	
11-85Na 322	1.0	Na	
11-85Mg	55.6	1.0	Mg
11-85K 8.66	1.0	K	
11-93U 76.7	1.0	U	
11-93Alk	310	1.0	Alk
11-93S 1800	1.0	S	
11-93Ca 636	1.0	Ca	
11-93Na 317	1.0	Na	
11-93Mg	55.4	1.0	Mg
11-93K 8.74	1.0	K	
11-102U 72.6	1.0	U	
11-102Alk	313	1.0	Alk
11-102S 1800	1.0	S	
11-102Ca	638	1.0	Ca
11-102Na	319	1.0	Na
11-102Mg	55.8	1.0	Mg
11-102K 8.72	1.0	K	
11-110U 72.3	1.0	U	
11-110Alk	308	1.0	Alk
11-110S 1790	1.0	S	
11-110Ca	635	1.0	Ca
11-110Na	321	1.0	Na
11-110Mg	55	1.0	Mg
11-110K 8.48	1.0	K	
12-8U 251.7	1.0	U	
12-8Alk 250	1.0	Alk	
12-8S 1820	1.0	S	
12-8Ca 589	1.0	Ca	
12-8Na 316	1.0	Na	
12-8Mg 57.8	1.0	Mg	
12-8K 8.9	1.0	K	
13-8U 248.5	1.0	U	
13-8Alk 287	1.0	Alk	
13-8S 1760	1.0	S	
13-8Ca 575	1.0	Ca	
13-8Na 291	1.0	Na	
13-8Mg 62.4	1.0	Mg	
13-8K 8.8	1.0	K	
13-17U 230.5	1.0	U	
13-17Alk	306	1.0	Alk
13-17S 1770	1.0	S	

13-17Ca 597	1.0	Ca	
13-17Na306	1.0	Na	
13-17Mg	62.3	1.0	Mg
13-17K 9.28	1.0	K	
13-26U 197.2	1.0	U	
13-26Alk	310	1.0	Alk
13-26S 1780	1.0	S	
13-26Ca 619	1.0	Ca	
13-26Na313	1.0	Na	
13-26Mg	57.8	1.0	Mg
13-26K 9.07	1.0	K	
13-34U 172.9	1.0	U	
13-34Alk	317	1.0	Alk
13-34S 1770	1.0	S	
13-34Ca 622	1.0	Ca	
13-34Na317	1.0	Na	
13-34Mg	53.6	1.0	Mg
13-34K 8.67	1.0	K	
13-42U 151	1.0	U	
13-42Alk	324	1.0	Alk
13-42S 1760	1.0	S	
13-42Ca 604	1.0	Ca	
13-42Na303	1.0	Na	
13-42Mg	51.6	1.0	Mg
13-42K 8.3	1.0	K	
13-51U 143.5	1.0	U	
13-51Alk	334	1.0	Alk
13-51S 1740	1.0	S	
13-51Ca 626	1.0	Ca	
13-51Na312	1.0	Na	
13-51Mg	53.4	1.0	Mg
13-51K 8.2	1.0	K	
13-59U 138.9	1.0	U	
13-59Alk	331	1.0	Alk
13-59S 1750	1.0	S	
13-59Ca 620	1.0	Ca	
13-59Na314	1.0	Na	
13-59Mg	53.7	1.0	Mg
13-59K 8.19	1.0	K	
13-68U 126.1	1.0	U	
13-68Alk	331	1.0	Alk
13-68S 1740	1.0	S	
13-68Ca 612	1.0	Ca	
13-68Na312	1.0	Na	
13-68Mg	56.4	1.0	Mg
13-68K 8.17	1.0	K	
13-77U 121	1.0	U	
13-77Alk	333	1.0	Alk
13-77S 1760	1.0	S	
13-77Ca 614	1.0	Ca	
13-77Na315	1.0	Na	
13-77Mg	57.6	1.0	Mg
13-77K 8.1	1.0	K	
13-85U 110.3	1.0	U	
13-85Alk	332	1.0	Alk
13-85S 1740	1.0	S	
13-85Ca 577	1.0	Ca	
13-85Na297	1.0	Na	

13-85Mg	54.4	1.0	Mg
13-85K 8.57	1.0	K	
13-94U 104.7	1.0	U	
13-94Alk	333	1.0	Alk
13-94S 1670	1.0	S	
13-94Ca 560	1.0	Ca	
13-94Na 303	1.0	Na	
13-94Mg	54	1.0	Mg
13-94K 8.35	1.0	K	
13-102U 99.1	1.0	U	
13-102Alk	314	1.0	Alk
13-102S 1540	1.0	S	
13-102Ca	528	1.0	Ca
13-102Na	309	1.0	Na
13-102Mg	54.6	1.0	Mg
13-102K 8.4	1.0	K	
13-111U 94.7	1.0	U	
13-111Alk	323	1.0	Alk
13-111S 1420	1.0	S	
13-111Ca	468	1.0	Ca
13-111Na	308	1.0	Na
13-111Mg	56.8	1.0	Mg
13-111K 8.35	1.0	K	
13-119U 92.8	1.0	U	
13-119Alk	330	1.0	Alk
13-119S 1330	1.0	S	
13-119Ca	433	1.0	Ca
13-119Na	310	1.0	Na
13-119Mg	58.5	1.0	Mg
13-119K 8.28	1.0	K	
13-128U 84.4	1.0	U	
13-128Alk	331	1.0	Alk
13-128S 1260	1.0	S	
13-128Ca	400	1.0	Ca
13-128Na	305	1.0	Na
13-128Mg	57.7	1.0	Mg
13-128K 8.15	1.0	K	
13-136U 83.9	1.0	U	
13-136Alk	336	1.0	Alk
13-136S 1240	1.0	S	
13-136Ca	369	1.0	Ca
13-136Na	305	1.0	Na
13-136Mg	58.6	1.0	Mg
13-136K 8.2	1.0	K	
13-145U 83.3	1.0	U	
13-145Alk	334	1.0	Alk
13-145S 1210	1.0	S	
13-145Ca	352	1.0	Ca
13-145Na	299	1.0	Na
13-145Mg	59.4	1.0	Mg
13-145K 8.2	1.0	K	
13-154U 82.7	1.0	U	
13-154Alk	298	1.0	Alk
13-154S 1200	1.0	S	
13-154Ca	373	1.0	Ca
13-154Na	311	1.0	Na
13-154Mg	60.9	1.0	Mg
13-154K 8.4	1.0	K	

13-162U79.2	1.0	U	
13-162Alk	309	1.0	Alk
13-162S 1190	1.0	S	
13-162Ca	357	1.0	Ca
13-162Na	312	1.0	Na
13-162Mg	60.5	1.0	Mg
13-162K8.46	1.0	K	
13-171U74.5	1.0	U	
13-171Alk	322	1.0	Alk
13-171S 1180	1.0	S	
13-171Ca	340	1.0	Ca
13-171Na	306	1.0	Na
13-171Mg	59.4	1.0	Mg
13-171K8.36	1.0	K	
13-179U73.1	1.0	U	
13-179Alk	321	1.0	Alk
13-179S 1160	1.0	S	
13-179Ca	345	1.0	Ca
13-179Na	306	1.0	Na
13-179Mg	60.1	1.0	Mg
13-179K8.37	1.0	K	
13-188U68.9	1.0	U	
13-188Alk	330	1.0	Alk
13-188S 1130	1.0	S	
13-188Ca	328	1.0	Ca
13-188Na	307	1.0	Na
13-188Mg	60.4	1.0	Mg
13-188K8.5	1.0	K	
13-196U67.7	1.0	U	
13-196Alk	333	1.0	Alk
13-196S 1100	1.0	S	
13-196Ca	308	1.0	Ca
13-196Na	305	1.0	Na
13-196Mg	60.4	1.0	Mg
13-196K8.51	1.0	K	

* model command line

phreeqc.exe

* model input/output

finalcell10.tpl finalcell10.pqi

finalcell10.ins final.out

* prior information

* regularisation

Table F-1. Parameter Values and Sensitivities for Each Geochemical Process Model

Parameters	sorp		sorp gyp		sorp dual		sorp dual gyp 1		sorp dual gyp 2		sorp dual gyp calcite		sorp dual gyp CE		sorp dual gyp disp		sorp dual gyp disp CE	
	value	sensitivity	value	sensitivity	value	sensitivity	value	sensitivity	value	sensitivity	value	sensitivity	value	sensitivity	value	sensitivity	value	sensitivity
gcsk	5.57	11.18	2.48	1.374E-04	6.08	7.96	4.99	24.57	3.24	25.84	3.58	3.010E-02	5.25	15.67	5.07	27.59	5.02	15.34
gcssk	7.36	5.22	7.36	17.17	7.47	3.18	8.11	5.38	8.16	6.12	9.15	16.31	7.01	6.89	8.34	5.52	6.98	7.18
gcssd	2.802E-04	14.70	1.154E-07	1.375E-04	1.792E-04	17.51	6.561E-04	28.29	3.399E-02	25.85	3.564E-06	3.009E-02	2.728E-04	18.65	6.339E-04	31.00	3.876E-04	17.23
gcsssd	1.183E-04	11.93	1.800E-04	31.08	7.550E-05	7.61	8.426E-05	9.20	9.295E-05	10.21	7.938E-05	29.60	8.030E-05	20.07	9.928E-05	8.03	8.474E-05	21.06
stagdiff					1.134E-06	9.70	2.367E-05	15.39	2.487E-05	15.23	1.257E-03	8.041E-03	6.552E-06	13.78	1.965E-05	30.46	6.459E-06	14.70
gyp			0.597	154.76			0.571	1.57	0.44	97.14	0.59	7.441E-03	0.562	118.83	0.456	120.27	0.569	146.08
exch													0.157	14.42			0.157	14.53
disp															8.912E-07	1.52E-03	2.172E-06	7.935E-04
stagpore					0.8	6.88	0.169	24.99	0.17	26.32	0.29	26.11	0.149	12.56	0.173	73.55	0.153	12.48

Note:
Model abbreviations are listed in Table 9; parameter abbreviations are listed in Table 10.

Table F-2. Phi Values for Each Geochemical Process Model

	sorp		sorp gyp		sorp dual		sorp dual gyp 1		sorp dual gyp 2		sorp dual gyp calcite		sorp dual gyp CE		sorp dual gyp disp		sorp dual gyp disp CE	
	Unitless	%	Unitless	%	Unitless	%	Unitless	%	Unitless	%	Unitless	%	Unitless	%	Unitless	%	Unitless	%
phi total	9.82E+07		2.43E+07		8.61E+07		1.01E+07		3.61E+06		1.84E+07		3.10E+06		3.92E+06		3.28E+06	
phi from uranium observations	9.16E+06	9.33	1.62E+07	66.45	1.32E+07	15.30	1.15E+06	11.40	1.09E+06	30.26	7.91E+06	42.97	8.39E+05	27.07	1.33E+06	33.91	8.39E+05	25.55
phi from alkalinity observations	1.20E+05	0.12	1.20E+05	0.49	8.93E+04	0.10	9.08E+04	0.90	9.07E+04	2.51	1.18E+06	6.42	9.56E+04	3.08	9.00E+04	2.29	9.53E+04	2.90
phi from sulfate observations	7.42E+07	75.53	6.59E+06	27.07	5.86E+07	68.11	7.75E+06	76.62	1.96E+06	54.33	7.40E+06	40.24	1.63E+06	52.59	2.05E+06	52.23	1.81E+06	55.26
phi from calcium observations	1.44E+07	14.62	1.07E+06	4.38	1.36E+07	15.75	8.40E+05	8.30	1.83E+05	5.08	9.61E+05	5.23	2.48E+05	7.99	1.73E+05	4.40	2.49E+05	7.59
phi from sodium observations	1.45E+05	0.15	1.45E+05	0.60	3.95E+05	0.46	1.08E+05	1.07	1.10E+05	3.06	8.01E+05	4.36	2.42E+05	7.82	1.13E+05	2.87	2.41E+05	7.35
phi from magnesium observations	2.42E+05	0.25	2.42E+05	0.99	2.32E+05	0.27	1.70E+05	1.68	1.70E+05	4.71	1.42E+05	0.77	4.36E+04	1.41	1.67E+05	4.25	4.37E+04	1.33
phi from potassium observations	2.31E+03	0.00	2.31E+03	0.01	1.89E+03	0.00	1.85E+03	0.02	1.85E+03	0.05	1.75E+03	0.01	9.33E+02	0.03	1.82E+03	0.05	9.19E+02	0.03

Notes:
Model abbreviations are listed in Table 9; parameter abbreviations are listed in Table 10.
Phi is that same as the sum-of-squared weighted residuals in the main text.

Figures for Each Constituent for Each Conceptual Model

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