Date: 12/10/14

BOREHOLE LITHOLOGICAL LOG

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Well Number/Name: MW-10

Name: J. Sobolew

Q	ır)		Moisture Content	Particle % Dist.	Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition			
Sample Depth (f	Drilling Rate (ft/h	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt Clav	ine Medium Coarse	Fine Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	None Weak Moderate Strong		Alteration Visible Grading Analysis Well Graded Fat Clay	Rock Type (USCS Group)	Comment

0	10 YR 4/3 611	X	s sstr	××	×> n × ×	×K	×	××	58	Poolly graded sand, 95 F send MC, Subjointed, Feginnel. QF
2	10 YR 4/4 aarle Yell-clot	×	41 100	×x×	× (×	×× ×	*	XX X	SP	Poorly graded sond 100% F-C, sub-angular to Subranded, QFA
3	5/4 5/4 yedai;4 brown	×	100	HXXX	×	** *		XX, XX	SP	Paolly gloded sand 100% F-C, Subangular to Subsended DEA to Clay Hallo
4	7.5 YR 4/4 610-1	X	los	×××	×	×××	×	××××	51	REA, to clay balls POOTS Godel Sond, 100% F-C, shapper to subsended, OFA time clay balls
5	10/12 bran	×	tr 100 1	XXX	× 63 ×	XXX	X	XX X X	5ρ	Poorly Graded Soul, 100% F-C, Subangula 10 Subjanded, QT. At trace cobble

Drilling Contractor: 6 456 ade

Drilling Rig Type: Plan San C

Drilling Method: Sonic

Sampling Method: hand aage!

Descriptive Location:

Date: | 2/10/14

BOREHOLE LITHOLOGICAL LOG

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Well Number/Name: Mw - 10

Name J. Soboku

0	<u></u>		Moistur Conten		Partic % Di		Gra Si:		Gra		Sortin	g	Grain S	Shape	Pl	astici	y		enta- on		Mine			П			
5	(3)	Color:				Fines	Sa	nd	Grav	vel						14					T		11		Rock		
Sample Dep	Drilling Rate	Munsell Name and Class	ory foist	Cobbles	Gravel	Silt	Fine	arse	Fine	Max	Well Medium	Poor	Sub-Angular	Sub-Kounded Rounded	None	Low	High	Weak	Moderate	Quartz	Feldspar Mica	Amphibole Evaporites Other	Alteration Visible Grading Analysis	Well Graded	Type (USCS Group)	Coi	nment

5	0818	10 YR 5/4 Yellowish	~	103 7	***	*	**	K	×× ×	SP	FOOTLY gladed Soud, 100 F-C, Submouler to subjected, OFA
2.7	OKT	1042 5/4 40/4/3 40 Brang	X	100 -fr	×××	×	xex	r	XXXX	SP	footly gladed soul, 100-1. F_C, salangual to salanded, QFA
28,5	09/5	2.54 5/4 light one brown	X	art 5	××	<×	× ×	×	** * *	5P-	Sand F-Physolians OFA 5/2 clay lagers: Jour Markity
33		104R 5/4 Yellowsh blan	X	100 fr	K X	×	×	×	XX X X	SP	FOOTY graded Sand, 10 F-M, Subpounded, 0 trace silts
37	Carried States	104R 6/3 Pate brown	X	100	* × ×	×	××	×	K K K K	SP	Poorly graded sand, in F-C, angular to sada OFAM

Drilling Contractor: Lascade

Drilling Rig Type: 010 50006

Drilling Method: 570 -

Sampling Method:

Descriptive Location: Leney, MAI'M

Date: 12/10/14

BOREHOLE LITHOLOGICAL LOG

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Well Number/Name: MW- 10

Name: J. Sobolan

(u	hr)		Moisture Content	Particle % Dist.	Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition			
Sample Depth (f	Drilling Rate (ft/	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt Clay	ne edium arse	Fine Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	None Weak Moderate Strong	Quartz Feldspar Mica Amphibole Evaporites Other	Alteration Visible Grading Analysis Well Graded Fat Clay	Rock Type (USCS Group)	Comment

37	0410	10-11 6/3 Pale Brawn	X	160	×××	×	×× ×	×	×××× ×	SP	Facily graded sand, 100% F-C, angular to Subangular, QFMA Saturated & 41
53		10-18 6/4 13ht yelle bran	4	15 85	1+++	+ X X	×× F	×	× × < ×	SP	Poorly Graded Sand W/gran 85% sand F-C, Subangal 10 substanded, F-C grave QFA
55		2.54 5/3 1:54+ 01:00 brown	Y	41 95 5	5 x x x	5 x	x x	<i>x</i>	X K K K	SP	Poolly graded send, 95%. Sand F-M, 5-bargular to Subsanded, 5% clay, clay balls, trace gravel
61,5		2.54 5/3 13/4 production	×	47 150	× × × ×	SXX	XX X		***	SP	POORly gladed sand 100%. Sand Fac, Subangular tro Sastorade 1 + 1 glavel
67		16/16 16/16 16/16	×	lo fr	X	×	×××	X	xxx x	SP	Poorly graded sond, 100% Very fine, subjected trace silt

Drilling Contractor:

Sampling Method:

Drilling Rig Type:

Descriptive Location:

Cementa-

Mineral

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Well Number/Name: MW-10

Moisture

Particle

Grain

Grain

Name: J. Sobolew

_	G.		Content	% Dist.	Size	Size	Sorting	Grain Shape	Plasticity	tion		Composit	ion				
Sample Depth (ft)	Drilling Rate (ft/hr)	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt		Gravel Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	None Weak Moderate Strong	Quartz	Feldspar Mica Amphibole	Evaporites Other	Alteration Visible Grading Analysis	Well Graded	Rock Type (USCS Group)	Comment
9 67		104R 5/3 brown	X	10 40 Ar	×××	× > 10	X	××	Y	×	×	xxx	X			59	Party studed sind, 90%. Sand F-C, suburgular to subsanded, F-C gravel, QFMA/69-70 very free Sand -) March traces of
0.815		2.54 4/3 blue blan	×	8515	×		×	**	×	X	×	XXX	X	1		SM	Silty Send, 85% U. Fire Send, Subangular to Subspanded, 15% SIH
83		2.54 5/4' 1:94+ object	×	955	xxx		X.4	××	X	Χ.	×	KXK	×			SP	95% Fix sand, 5%. Silt, subangula; to subjounded
84.5		2.54 4/3 01:02	×	4515	/		×	××	K	*	×	XXX	×			SM	Silty sand, 85% U. Fine sand, subangular to subspended, 15% Silt QFMA
85.8		5-1R 516 yellowsh		3065	5 x x x	××55	×	××	Y	X	×	×	×			St	Paorly Gradel Sand W/Slund, 65% F-C sand, Subangeter to subrounded, 30% gravel F-C, QA, Sil. Clay low plasticity

Drilling Contractor:

Sampling Method:

Drilling Rig Type: Drilling Method:

1.4

Descriptive Location:

Date: 12/10/14

BOREHOLE LITHOLOGICAL LOG

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Well Number/Name: MW-10

Name: J. Sobolew

	r)		Moisture Content	Particle % Dist.	Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition				
Sample Depth (ft)	Drilling Rate (ft/h	Color: Munsell Name and Class	y oist turated	avel nd t	ne edium arse	Gravel	ell edium or	gular b-Angular b-Rounded unded	ww edium gh	ne aak oorg	ldspar ca nphibole aporites	ration Visible ding Analysis	l Graded Clay	Rock Type (USCS Group)	Comment
			Dr. Sat	Sa Sa	E N O	Ma Co.	W W	Ar Su Su Ro	ENCZ	No We Me	Or Mi Ar Ev Or	AlteGra	Fat		

85.5	5/6 5/6 Yellerit	×	15 95	#/ X X X	×× 23 ×	**	X	×	××××	SP	Poorly graded Sand W/glasol, 85 F- (Sabiograf to Subscenes, 15/ F-c grace
29	2.5 y 5/4 hightofive bison	Y	10 90	tr XXX	XXIIXX	XX	x	*	XX X	58	Poolly gladed soul) 90% Fil subusyalus to subsounded, 10%. Fil glavel
91	2.54 179ht 0150c 5000	X	100 +6	· × ×	*	**		X	*** *	SP	facily gold Send, 100%. F-C Sund, subangular to subranded, trace S: 1+ QFM
6	2.57 5/4 1:394 6000	×	15 95	x(VXX	× × 32	K	×	×	×× × ×	SP	Folly gladed send, 85%. For count, subengular to subtainded, For Jenuel 15% RFA
57	2.57 5/3 19ht oler 6000	×	105	kt x x	*	×	r	*	XXXXX	SP	FOOTY graded send, 100%. F-M send, grading floor tourists sollion Subandular QFMA

Drilling Contractor:

Sampling Method:

Drilling Rig Type:

Descriptive Location:

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Date: |2/|1/14 Well Number/Name: MW-10

Name: J, Sobolan

	c c		Moisture Content	Particle % Dist.	Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition			
Sample Depth (ft	Drilling Rate (ft/h	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt Clav	ne edium oarse	Eine Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	None Weak Moderate Strong	Quartz Feldspar Mica Amphibole Evaporites	Alteration Visible Grading Analysis Well Graded	Rock Type (USCS Group)	Comment

97	104R 4/3 blown	X	58510	***	6 ×	××	*	X	×××× ×		SP- SM	Bootly Graded send wish BSV F-K Sandy \$01.51) Subenyular to subjounded 51. Fylandy OFMA
1/3	(100-109) 2.54 4/3 6125 5000 (109-113)	×	3 5/25	X	×	××	1	×	XXXX X		SM	Silty Sand, \$5% sand Very fine to fine, Subang to subsociated, 25% sil WFMA Shells found 100-101
121	548 5/8 4010-159 70 8 (119,9) 2.54 6/4 11974 4010-159	X	l*oHr	*/*	×	××	<	X	x x × x	K	SP	Poolly gladed sand, 100%. F-C sand, Subang day + Sublocated, trace silt Lold change 113-1/4.4, 114.4 to 117, 117+121
125	7.54R 5/6 Stron brown 121-122 104R S/4 YelberishNober	Y	85 15	××	×	×	X	1	XXXX X		SM	Silty Sund, 85% For South of Predominantly For Subsounced) 15% Silt QFMA, Packets of Coarse Sand and gowel
126	104R 5/4 Vellorish brown		10855	* * * *	5 xx	××	X	X	XX X X		SP	Paoly Graded Send, 85%. F-C Send, and to Subungalan, 10% F gravel, 5%. 5:14, RFA

Drilling Contractor:

Sampling Method:

Drilling Rig Type:

Descriptive Location:

Date: 12/11/14

BOREHOLE LITHOLOGICAL LOG

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Well Number/Name: M W-10

Name: J. Sosolew

	E .		Content	Particle % Dist.	Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition				
Sample Depth (ft)	Drilling Rate (ft/hr)	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt		Fine Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	None Weak Moderate Strong	Quartz Feldspar Mica Amphibole Evaporites	Other Alteration Visible Grading Analysis	Fat Clay	Rock Type (USCS Group)	Comment
126		7.5 K 5/6 Strang brown	*	80 20	0 8		x	×	×	× *	x x	**		SC	Clayey Sand, 80% F soul Subangular, 20% clay 10- plasticity RH
133.5		7.54R 5/4 64m 154R 4/6 Vello-154 1 64 132-132	5	1575 10	v××	× <61	X	××	×	×	xxx	<		5P/ 5C	Poolly gleded Sund w/clay; 75% F- (send, sub-nyuhan to sceletounded) Faglance 115 OFMA, 10% Clay Mplasters
35		2.5 × 6/3	X	5 80 1	SXXX	× 5	X	XX	×	×	X XX			SM	Silty sond, 80% FC. Sand, Subangular to Subanded, low Plasticity, QMA
47		7.5 1R 6000 7.5 1R 416 24 1009	×	595	XX		×	X	. ×	× ·	× _	×		ML	Silt, 95% silt, F-M sond, Quarts subungular trace clay found frond 140.2-147
149,5		2,54 4/2 dack grayish brown	<	ام ام	A ×		X	×	×	×	×	×		CH.	Fat clay, 100%. Clay, Sight plastich + lace send, subranda

Drilling Contractor:

Sampling Method:

Drilling Rig Type:

Descriptive Location:

Date: 12/12/14

BOREHOLE LITHOLOGICAL LOG

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Well Number/Name: MW-10

Name: J. Sobolew

(ft) /hr)		Moisture Content	Particle % Dist.	Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition			
Sample Depth (f	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt Clay	Fine Medium Coarse	Fine Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	one /eak Ioderate Irong	Quartz Feldspar Mica Amphibole Evaporites Other	Alteration Visible Grading Analysis Well Graded Fat Clay	Rock Type (USCS Group)	Comment

149,5	2,54 5/4 11944 Olive blan	×	8515 × x	X	× ×× ×	× × ×	SM sc	Silty Send/Clayer Sind, 958. F-M Sind, subjects medium sorting, Law- nell planticity, RA
167	104/2 dark Yellanish brann	×	85 15 X	×	× × ×	. 8 ×	SC	clayey sind, 85%. Fine sund, subungular, clay 15%. Iou to mediza plasticity
177	104R 4/4 dark Yellowish brown	×	955 × × 1,	×	Z X X	×× × ×	SP	Poolly gladed sond, 95%. F-M sand, subangular, 5%. 5:1+, trace course sand, QFA
197	SYR 4/6 Yellowish rea 177-183 SY 4/2 Olive Slay	×	45 15× <	×	** * *	X X X XX	SC	Clayey Sand, 85%F-M Sand, Subagular to Sublocated, 18% clay, low to high plasticity, QFA, Alteration in color
	104R 3/3 dark brain		85 15 X X	X	XX X X	× ×	SM	Sity Sand, 85% F-M. Sund, Predominently Me, Subangular to subjounded, 15% 5:14, QA

Drilling Contractor: Lasade

Drilling Rig Type: Prosonie Goot

Drilling Method: 5011

Sampling Method:

Descriptive Location: Cemex - HW-10

Date: 12/12/14

BOREHOLE LITHOLOGICAL LOG

Grain Shape Plasticity

Cementa-

Mineral

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Well Number/Name: MW-10

Particle

Grain

Grain

Sorting

Name: J. Sobolew

ο .	E)		Conte	ent	9	Dist.		Size		Size	Sc	orting	Gra	ain S	Shape	1	Plast	icity		tic				omp	ositio	on	1		1		
Sample Depth (ft)	Drilling Rate (fVhr)	Color: Munsell Name and Class	Dry Moist	Saturated	Cobbles	Sand	Clay	Fine Medium		Coarse Max		Medium	Angular	Sub-Angular	Sub-Rounded Rounded	None	Low	Medium	None	Weak	Moderate	Ouartz				Evapontes	Alteration Visible	Grading Analysis	Fat Clay	Rock Type (USCS Group)	3 I
212.2	5	2.54 5/3 light Orive brown	>			4	103	\			×			V				*	×			×				4				CH	Fat Clay, 100% Clay, truck fine sold Subangular, Quartz
227		2.54 6/b Olive Yellow	×			15	83	×			. ,	5		~				××	×			>	<×	X	*	<				CH	Fat clay cellsands 85/clay, 15/sand FM, Subangalor, QFMA, Median to high Photicity
241		5/2 01:0e gra)	×				100				X							×	/								X			CH	Fat clas, 100% clay high plasticity
2:3		5/2 11797 07:00 2/07	X			35	65	××				××		X			×	*	X			×		X	×	X				CL	Sandy lean clay, 65% clay, 10w to medium plans, 35%- F-M sund, subsequently and
71/2		2.5-1 6/3 1:540 Jelan			yo	99	5	×× ×	ĺχ	XHB		X	,	<		X			X			×	×	<	~	×				50	Poolly greated sand w/grazel, 55% F-C Sand, 40% F-C grevel, subanglatur to subranded, 5%. Silt, large colole,

Drilling Contractor:

Sampling Method:

Drilling Rig Type:

Descriptive Location:

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Date: |2/(2/(4 Well Number/Name: M W-1D

£	hr)		Moisture Content		Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa-	Mineral	ППТ	Name:), Jobo G	
nple Depth (f	ling Rate (ft/l	Color: Munsell Name and Class	q	Fine	s Sand	Gravel		ılar ded		tion	Composition	isible Ilysis	Rock Type (USCS	Comment
Sampl		Dry Moist Saturated	Cobbles Gravel Sand	Fine Medium Coarse	Fine Coarse Max	Well Medium Poor	Angular Sub-Angu Sub-Roun Rounded	None Low Medium High	None Weak Moderate Strong	Quartz Feldspar Mica Amphibole Evaporites Other	Alteration Vi Grading Ana Well Graded Fat Clay	Group)		

247 .	546/3 Pale Olive 243-250.51 Gley 1 4/ dalk	[40]		×		CH	Fat Chy, 100% Fat Chy, high plasticity.
267	2,54 5/3 1:543 Olive brown	1930 60××××53	Y XX	×××	×	CH	Sondy Fat Clay W/glavely Box Clay, med to high plasticity Box Sond F-C, 10% gravel, Subangular
269.2	5 1 5/2 01:00 9/07	5 10 85 x x x x 5	*	x	xxxxx	CL	Lean clay w/sond, 85% Clay, Medium plesticity, col. Fic sonds 5% & glavel, Subangilar to submunded
271.3	2,5×1 6/2 Gray	1575 10 ×× ×× 18	XXX	KK X	XX X X	SP- SC	Rootly greded sand w/cley and grave 1. 75% FC Sand, 156FC grave), Subang akt, 10% clay, low to median plasticity,
277,3	1040 6/4 11345 yellari 61041 4/deck	45 40 15 x x x x x 81	X	x x	XXXX X	GC	Clayey Glad w/sent, 45% gravel F-C, 40%- sent F-C, 15% clay low to med plasticity large cobbles 81 mm 1 a yell of clay

Drilling Contractor: LASCADE

Drilling Rig Type: Prosonic 600T

Drilling Method: Sonic

Sampling Method:

Descriptive Location: Lemex MW.ID

chent

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Date: 12/13/14
Well Number/Name: MW-10

(ft)	(hr)		Moisture Content	Particle % Dist.	Grain Size	Grain Size	Sorting	Grain Shape	Plasticity	Cementa- tion	Mineral Composition	П		Ť	. Sobolav
Sample Depth (Drilling Rate (ft/	Color: Munsell Name and Class	Dry Moist Saturated	Cobbles Gravel Sand Silt Clay	£	Fine Coarse Max	Well Medium Poor	Angular Sub-Angular Sub-Rounded Rounded	None Low Medium High	None Weak Moderate Strong	Quartz Feldspar Mica Amphibole Evaporites Other	Meration Visible Grading Analysis	Vell Graded at Clay	Rock Type (USCS Group)	Comment
2 20.4			7				·					<u> </u>	ا منا ا		
274.5		2.5 \											T	Τ	Fat CINI, 100/ Clay

274.	2.5 4			
	1/3	Y 100		CH median plasticity
276.7	b12-∧			CH median plasticity, withle true intersects of sand
282,1	104R G/3 Palc Brown	× 10 gb ×××	7 × × × × ×	St Paorly grided son! / St, 90% son F-C, 10% Formal, 5-6-norten to Subtanted OFMA
2 02,1	TOYR			
287	5/2 grayist	× 30 35 5 × × ×		SP BOX 17 State Sind w/ SP BOX B5X F (Sind), BOX graved , subagate TO Sub roundal, GFA SIX clay
291	7.54 5/4 Brom	×	X X X X	ML Sorid y Sitt, FOX sith, 307. Very fine sand, Substanded, QF4
	124R		! 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
301	6/4 1: 1/1+ 4816-13 th Blown	59540 4 * *	5 7 ~ ~ ~ ~	SP footly gladed send, 95%. Sound, F.C send, substituted To substituted, 5% Foquel Arace 5' H QFMA

Drilling Contractor: Cascode

Drilling Rig Type: Prosonic LooT

Sampling Method:

Descriptive Location: (cmex MW-1D

Drilling Method: Sonic

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Date: \2/13/14
Well Number/Name: MW-10

Name: I Salvalew

(J)	hr.)		Moistu Conte	- 1		rticle Dist.	- 1	Gra Sia	5000	Gra Siz		Sor	ting	Gra	in Sh	ape	Pla	sticit	у		enta-	T		Mine	ral sition	1	T	П	T			
Sample Depth (f	Drilling Rate (ft/l	Color: Munsell Name and Class	Dry Moist	Saturated Cobbles	Gravel	Sand	Clay	Fine	arse	Fine Coarse	1ax	llə/	Poor	Angular	Sub-Angular Sub-Rounded	nuded	None	Medium	High	sak	Moderate	Strong Quartz	eldspar				radir	Well Graded		Rock Type (USCS Group)	Comment	

337	10/24/4 BIDAN 327-7243 54 5/1 01:00 4/19		103				×			SH	Fat clay, 100%. Clay, high plasticity, 327-329.3 biithle
327	104R 5/3 13/000	X	130 tc ×	×	××	××	×	×	× ×× ×	5P	Poolly graded, 100x. FAM sund, subaryuby, to subranded, traceS: It, QMA
325.1	7,5 YR 4/4 Drown	Y	tr35 <		<	X	× .	X	× × ×	ML	51/t, 1009 silt, tille very fire sund, subrounded, QMI
319.5	7,51R 4/2 Brown	1	as 5 ×	×	×	×	*	X	X XX	Sr-31	
301	104R Sly Yellowish Brown	×	25 65 19	1 × × 62	s ×	\ X	X	,	× ×××	SW- SC	well graded sand w/cby and gravel, 65% sand F-C pretemmently F-M, F-C 25% gravel, subsengular to subsensed, 10% clay, low plasticity

Drilling Contractor: Lascade
Drilling Rig Type: Prosont 600 T

Drilling Method: Sont

Sampling Method: Local

Descriptive Location: (2 max - MW-10