

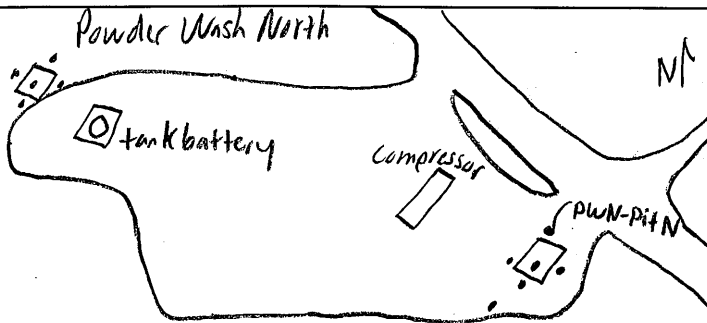
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 820 Megan Ave Unit B
 Rifle, Colorado 81650

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: PWN-Pit W	Project: East Hiawatha and Vermilion Creek
Date: 11-5-15	Project Number: 44715005
Logged By: Wesley Toews	Drilled By: Elite Drilling

Elevation:	Detector: PID	Drilling Method: GeoProbe	Sampling Method: Direct Push
Gravel Pack:	Seal: Bentonite Chips	Grout: NA	
Casing Type:	Diameter: Length:	Hole Diameter: 2.5"	Depth to Liquid: NA
Screen Type:	Slot: Diameter: Length:	Total Depth: 16.5'	Depth to Water: NA

% Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
100%	no	no	dry	0.0	1000	0		SM	0-4': tan, silty sand, loose	
100%	no	no	dry	0.0	1005	4		SM	4-8': same as above, oxides	
100%	no	no	dry	0.0	1010	8		SM	8-12': same as above w/ mica flakes	
100%	no	no	dry	0.0	1015	12		SM CL	12-13': same as above 13-16': gray, silty clay, dense, oxides	
100%	no	no	dry	0.0	1020	16		CL	16-16.5': gray-tan, sandy clay, becoming sandier in shoe, dense, calcite lenses - refusal at 16.5' - TD = 16.5' bgs - submit 16-16.5' - backfill w/ sand to 1.5', bentonite to 6", native to surface	
						18				
						20				
						22				
						24				
						26				
						28				
						30				
						32				
						34				
						36				
						38				
						40				
						42				



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:	PWN-Pit N	Project:	East Hiawatha and Vermilion Creek
Date:	11-5-15	Project Number:	44715005
Logged By:	Wesley Toews	Drilled By:	Elite Drilling

Elevation:	Detector	Drilling Method:	Sampling Method:
	PID	GeoProbe	Direct Push
Gravel Pack:	Seal:	Grout:	
	Bentonite Chips	NA	
Casing Type:	Diameter:	Length:	Hole Diameter:
			2.5"
Screen Type:	Slot:	Diameter:	Length:
			16.5'
			Depth to Liquid: NA
			Depth to Water: NA

% Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
100%	no	no	dry	0.0	0915	0		SM	0-4': silty sand, tan	
						2				
						4				
100%	no	no	dry	0.0	0925	6		SM	4-8': same as above	
						8				
100%	no	no	dry	0.0	0930	10		SM ML	8-10': same as above 10-12': grey, silt, dense	
						12				
100%	no	no	dry	0.0	0935	14		CL	12-15': grey, silty clay, dense, refusal at 15', will try to probe farther	
						16				
100%	no	no	dry	0.0	0945	16		SW	16-16.5': Ss (pulverised), oxides, tan-orange	
						18			- refusal at 16.5' bgs	
						20			- TD = 16.5' bgs	
						22			- submit 16-16.5'	
						24			- backfill w/ sand to 1.5', bentonite to 1', native to surface	
						26				
						28				
						30				
						32				
						34				
						36				
						38				
						40				
						42				

Powder Wash North

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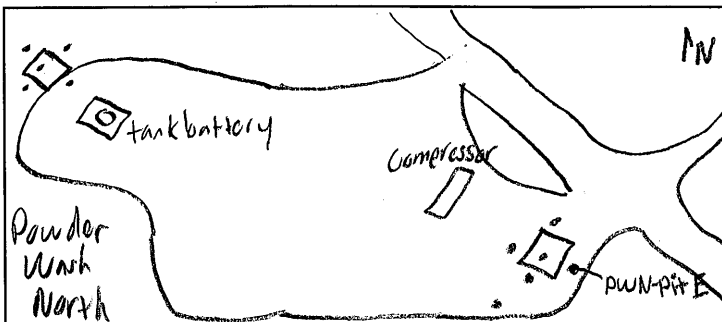
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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: **PWN-Pit S** Project: **East Hiawatha and Vermilion Creek**
 Date: **11-5-15** Project Number: **44715005**
 Logged By: **Wesley Toews** Drilled By: **Elite Drilling**

Elevation: _____ Detector: **PID** Drilling Method: **GeoProbe** Sampling Method: **Direct Push**
 Gravel Pack: _____ Seal: **Bentonite Chips** Grout: **NA**
 Casing Type: _____ Diameter: _____ Length: _____ Hole Diameter: **2.5"** Depth to Liquid: **NA**
 Screen Type: _____ Slot: _____ Diameter: _____ Length: _____ Total Depth: **31.5"** Depth to Water: **NA**

% Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
						0		SM	0-2': silty sand, mica flakes, red	
90%	no	no	moist	0.0	1035	2		SL	2-4': grey-tan, clayey sand	
						4				
						6		SL	4-8': tan, clayey sand, oxides, mica flakes, calcite lenses	
100%	no	no	moist	0.0	1045	8				
						10		SM	8-12': same as above, silty sand	
100%	no	no	moist	0.0	1050	12				
						14		SL	12-16': clayey sand, same as above, becoming denser	
90%	no	no	moist	0.0	1055	16				
						18		SL	16-20': same as above	
100%	no	no	moist	0.0	1110	20				
						22		SM	20-23.5': silty sand, same as above	
	no	no	moist	4.5	1120	24		SL	23.5-24': grey-green, sandy-silty clay, sewer odor	
100%	yes	yes	moist	4.5	1120	26				
						28		SL	24-28': sandy-silty clay, grey, staining	
100%	yes	yes	moist	71.5	1130	30			27-28': tan-orange 24-27', sewer odor	
						32		CL	28-31.5': tan-orange, silty clay, sewer odor,	
100%	yes	yes	moist	2375	1140	34			- refusal at 31.5'	
						36			- submit 28-31.5'	
						38			- TD = 31.5' bgs	
						40			- back fill w/ sand to 1.5', bentonite to 6", native to surface	
						42				



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: PWN-Pit E		Project: East Hiawatha and Vermilion Creek	
Date: 11-5-15		Project Number: 44715005	
Logged By: Wesley Toews		Drilled By: Elite Drilling	
Drilling Method: GeoProbe		Sampling Method: Direct Push	
Seal: Bentonite Chips		Grout: NA	
Elevation:	Detector: PID	Hole Diameter: 2.5"	Depth to Liquid: NA
Gravel Pack:	Diameter:	Length:	Depth to Water: NA
Casing Type:	Diameter:	Length:	Total Depth: 31'
Screen Type:	Slot:	Diameter:	Depth to Water: NA

% Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
30%	no	no	dry	0.0	0815	0		SM	0-4': silty sand, tan	
						2				
						4		SM	4-8': tan, silty sand, oxides	
90%	no	no	dry	0.0	0820	6				
						8				
100%	no	no	dry	0.0	0825	10		SM	8-12': same as above	
						12				
						14		SM	12-16': same as above	
100%	no	no	moist	0.0	0830	16				
						18		SM	16-20': same as above	
100%	no	no	moist	0.0	0840	20			resume drilling due to extent of HCL impact in PWN-Pit 5	
90%	no	no	moist	0.0	1239	22		SL	20-24': tan, clayey sand, oxides, calcite lenses, becoming denser	
						24				
100%	no	no	moist	0.0	1250	26		SL	24-28': tan, clayey sand, oxides, calcite lenses, lenses of black sand	
						28				
80%	no	no	moist	0.0	1300	30		SL	28-31': same as above with increasing clay %, mica flakes	
						32			-no impacts observed	
						34			-refused at 31'	
						36			-TD=31' bgs	
						38			-submit 28-31' bgs	
						40			-backfill w/ sand to 1.5', bentonite to 6", native to surface	
						42				

Powder Wash North

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: **PWN-Pit SE** Project: **East Hiawatha and Vermilion Creek**
 Date: **11-5-15** Project Number: **44715005**
 Logged By: **Wesley Toews** Drilled By: **Elite Drilling**

Elevation: Detector **PID** Drilling Method: **GeoProbe** Sampling Method: **Direct Push**
 Gravel Pack: Seal: **Bentonite Chips** Grout: **NA**
 Casing Type: Diameter: Length: Hole Diameter: **2.5"** Depth to Liquid: **NA**
 Screen Type: Slot: Diameter: Length: Total Depth: **32'** Depth to Water: **NA**

% Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
80%	no	no	moist	0.0	1320	0		SL	0-2': tan, clayey sand, organic matter	
			dry			2		SM	2-4': dark red, silty sand, calcite lenses	
						4				
100%	no	no	dry	0.0	1330	6		SM	4-6': dark red, silty sand, clay lenses	
						8		ML	6-8': tan, sandy silt, oxides, calcite lenses	
100%	no	no	dry	0.0	1335	10		ML	8-12': same as above	
						12				
100%	no	no	dry	0.0	1340	14		ML	12-16': same as above	
						16				
80%	no	no	dry	0.0	1348	18		ML	16-19': same as above	
			moist			20		CL	19-20': tan, clay, oxides, calcite lenses	
						22		CL	20-22': tan, clay, oxides, calcite lenses, mica flakes	
100%	no	no	moist	0.0	1355	24		CL	22-24': red, clay, oxides, calcite lenses, mica flakes	
			moist			26		CL	24-28': red, clay w/ silty lenses, calcite, oxides, dense	
100%	no	no	moist	0.0	1410	28				
						30		CL	28-32': same as above	
100%	no	no	moist	0.0	1425	32				
						34			- submit 28-32'	
						36			- TD = 32' bgs	
						38			- backfilled to 1.5' w/ sand, bentonite to 6", native to surface	
						40				
						42				

Powder Wash North



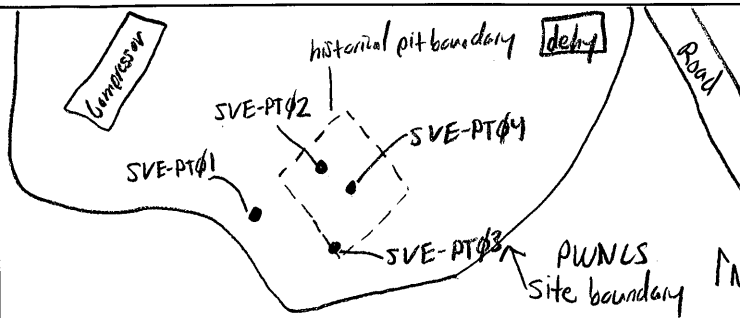
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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: **PWN-Pit Bot** Project: **East Hiawatha and Vermilion Creek**
 Date: **11-6-15** Project Number: **44715005**
 Logged By: **Wesley Toews** Drilled By: **Elite Drilling**

Elevation: _____ Detector: **PID** Drilling Method: **GeoProbe** Sampling Method: **Direct Push**
 Gravel Pack: _____ Seal: **Bentonite Chips** Grout: **NA**
 Casing Type: _____ Diameter: _____ Length: _____ Hole Diameter: **2.5"** Depth to Liquid: **NA**
 Screen Type: _____ Slot: _____ Diameter: _____ Length: _____ Total Depth: **22.5'** Depth to Water: **NA**

% Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
90%	Yes	Yes	moist	1515	0830	0		SM	0-1': silty sand, black, 1-4': silty sand, tan	
						2				
						4				
100%	No	Yes	moist	1382	0835	6		SM ML	4-7.5': same as above 7.5-8': silt, tan	
100%	Yes	Yes	dry	1923	0843	10		SM	8-12': sandy silt, tan changing to black at 11'	
						12				
100%	Yes	Yes	dry	2647	0850	14		SM CL	12-16': black-grey, 12-15 sandy silt, 15-16 silty clay, mica flakes	
100%	Yes	Yes	dry	1903	0857	18		ML	16-20': black-grey changing to grey-green at 17', silt, calcite lenses	
100%	Yes	Yes	dry	1722	0905	22		SM	20-22.5': black-grey-green-tan, sandy silt, oxides	
						24			-refusal at 22.5' bgs	
						26			-TD = 22.5' bgs	
						28			-submit 12-16' and 20-22.5'	
						30			-backfill w/ bentonite to 6", native to surface	
						32				
						34				
						36				
						38				
						40				
						42				

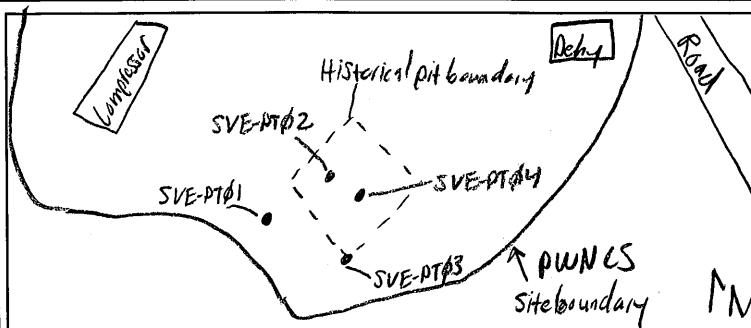


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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SVE-PT01		Project: Powder Wash North, LS East Hiawatha and Vermilion Creek	
Date: 4/25/2016		Project Number: 44715005.2	
Logged By: Wesley Toews		Drilled By: Dakota Drilling, INC	
Drilling Method: Hollow Stem Auger		Sampling Method: Split Spoon	
Seal: Bentonite Chips		Grout: NA	
Diameter: 2"	Length: 20' + 5' sticks	Hole Diameter: 8"	Depth to Liquid: NA
Diameter: 2"	Length: 10'	Total Depth: 30'	Depth to Water: NA

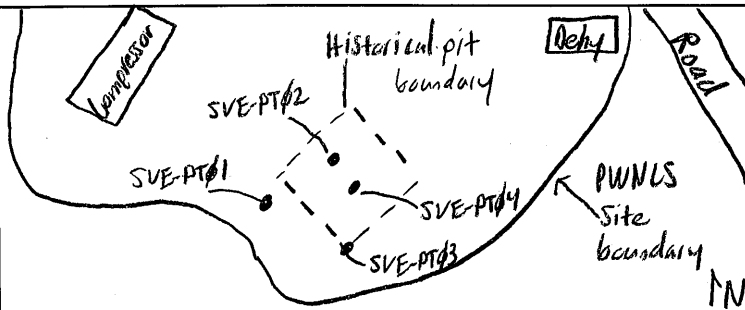
Resistance and Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
						0				XX
						2				XX
						4				XX
						6	X	SL	5-7': brown, SAND, clayey, moist, fine grained, oxides, no HC odor or staining	XX
						8				XX
						10	X	SL	10-12': same as above, no oxides	XX
						12				XX
						14				XX
						16	X	SL	15-17': same as above	XX
						18				XX
						20				XX
						22	X	CL	20-22': grey-brown, CLAY, silty, moist, HC odor and staining, medium plasticity and cohesion, oxides	XX
						24				XX
						26	X	SM	25-27': grey, SAND, silty, dry, HC odor and staining, low plasticity and cohesion	XX
						28				XX
						30				XX
						32	X	CLS	30-32': brown-grey, weathered, CLAYSTONE, dry, HC odor and staining	XX
						34				XX
						36				XX
						38				XX
						40				XX
						42				XX



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Elevation: 6695'		Detector: MiniRAE 3000 PID		Drilling Method: Hollow Stem Auger		Sampling Method: Split Spoon	
Gravel Pack: Silica Sand 10/20		Seal: Bentonite Chips		Grout: NA			
Casing Type: Schedule 40 PVC		Diameter: 2"		Length: 20' + 5' sticky		Hole Diameter: 8"	
Screen Type: Schedule 40 PVC		Slot: 0.010"		Diameter: 2"		Length: 10'	
				Total Depth: 30'		Depth to Water: NA	

Resistance and Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion	
						0				XX	XX
						2				XX	XX
						4				XX	XX
						6	SL		5-7': brown, SAND, clayey, fine-grained, moist, no HC odor or staining	XX	XX
5/5/4/4 100%	NO	NO	moist	10.5	1441	8				XX	XX
						10	SL		10-11': Same as above	XX	XX
3/4/1/3 100%	NO	NO	moist	1.8	1453	12	CL		11-12': brown, CLAY, silty, moist, medium cohesion and plasticity, no HC odor or staining	XX	XX
						14				XX	XX
12/10/18/22 100%	Yes	Yes	dry	19.9	1504	16	CL		15-17': brown-grey, CLAY, silty, dry, muscovite flakes, HC odor and staining, oxides, medium plasticity and cohesion	XX	XX
						18				XX	XX
18/34/50 for 5" 100%	Yes	Yes	dry	1573	1520	20	CL		20-22': Same as above	XX	XX
						22				XX	XX
18/36/50 for 5" 100%	Yes	Yes	dry	1263	1535	26	SM		25-27': grey, SAND, silty, dry, very fine grained, HC odor and staining, oxides	XX	XX
						28				XX	XX
18/26/50 for 6" 100%	Yes	Yes	moist	978.2	1553	30	CLS		30-31': grey, weathered, CLAYSTONE, moist, HC odor and staining		
	NO	NO				32			31-31.5': brown, weathered CLAYSTONE, moist, no HC odor or staining		
						34					
						36					
						38					
						40					
						42					



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SVE-PT#3	Project: East Hiawatha and Vermilion Creek
Date: 4/25/2016	Project Number: 44715005.2
Logged By: Wesley Toews	Drilled By: Dakota Drilling, INC
Drilling Method: Hollow Stem Auger	Sampling Method: Split Spoon
Seal: Bentonite Chips	Grout: NA
Diameter: 2"	Length: 10' + 5' sticky
Hole Diameter: 8"	Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010"
Diameter: 2"	Length: 5'
Total Depth: 15'	Depth to Water: NA

Resistance and Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion	
						0				XX	XX
						2				XX	XX
						4				XX	XX
						6	⊗	SL	5-7': brown SAND, clayey, dry, no H ₂ O odor or staining, low cohesion and plasticity	XX	XX
						8				XX	XX
						10	⊗	SL	10-12': same as above, moist, driller estimated contamination at 12' bgs	XX	XX
						12				XX	XX
						14				XX	XX
						16	⊗	CL	15-17': black, CLAY, sandy, dry, oxides, H ₂ O odor and staining, low cohesion and plasticity		
						18					
						20					
						22					
						24					
						26					
						28					
						30					
						32					
						34					
						36					
						38					
						40					
						42					

5/5/6/11 100%

no no

dry

6.4

1640

6/8/9/11 100%

no no

moist

32.4

1650

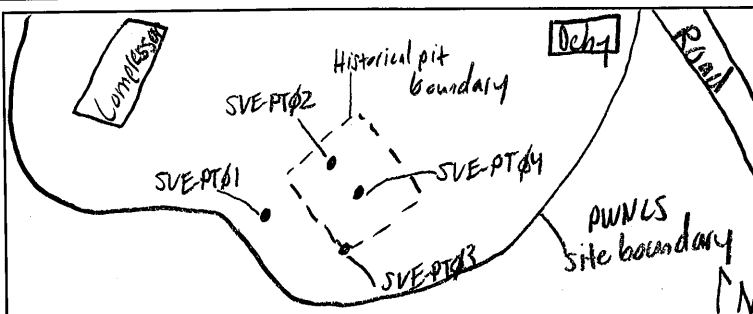
8/6/7/5 100%

yes yes

dry

118.2

1705



BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: SVE-PT04	Project: Powder Wash North CS East Hiawatha and Vermilion Creek
Date: 4/25/2016	Project Number: 44715005.2
Logged By: Wesley Toews	Drilled By: Dakota Drilling, INC

Elevation: 6695'	Detector MiniRAE 3000 PID	Drilling Method: Hollow Stem Auger	Sampling Method: Split Spoon	
Gravel Pack: Silica Sand 10/20		Seal: Bentonite Chips	Grout: NA	
Casing Type: Schedule 40 PVC		Diameter: 2"	Length: 10' + 5' stick up	Hole Diameter: 8"
				Depth to Liquid: NA
Screen Type: Schedule 40 PVC	Slot: 0.010"	Diameter: 2"	Length: 5'	Total Depth: 15'
				Depth to Water: NA

Resistance and Recovery	Staining?	Odor?	Moisture Content	PID (ppm)	Time	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion	
		Yes				0				XX	XX
						2				XX	XX
						4				XX	XX
						6	X	SC	5-7': brown, SAND, clayey, moist, HC odor, no staining, laminated oxidation zones, very fine grained	XX	XX
3/4/2/3 100%	No		moist	3864	1724	8				XX	XX
						10	X	SC	10-12': same as above, oxidation zones not present	XX	XX
10/12/12/16 100%	No		moist	3523	1733	12				XX	XX
						14				XX	XX
						16	X	ML	15-17': brown, SILT, sandy, dry, HC odor, no staining, low cohesion and plasticity, sandy interbeds	XX	XX
6/7/10/14 100%	No	↓	dry	2201	1744	18				XX	XX
						20				XX	XX
						22				XX	XX
						24				XX	XX
						26				XX	XX
						28				XX	XX
						30				XX	XX
						32				XX	XX
						34				XX	XX
						36				XX	XX
						38				XX	XX
						40				XX	XX
						42				XX	XX