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Level IV Data Package

MWH Group 203332

Method: 160.1 TDS

Sample No.:

2705020837
2705020838
2705020839
2705020840
2705020841
2705020842
2705020843
2705020844
2705020845
2705020846
2705020847
2705020848
2705020849
2705020850
2705020851
2705020852
2705020853
2705020854
2705020855
2705020856
2705020857
2705020858
2705020859
2705020860
2705020861
2705020862
2705020863
2705020864

MWH Laboratories
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3829

TOTAL DISSOLVED SOLIDS (TDS) MW SOP REVISION 6
SM2540C

Analysis start date: 5/7/07 End: 5/09/07
Analyst: MMM
Reviewed By: [signature]
LIMS Check By: NM 5/11/07
Was QC Criteria Met: Y N
Was QIR Needed: Y N

Oven Temp (180°±2°C): Start 180 C End: 180 C
Oven Mfr: "Precision STM135" Ser no.: "11AW-6"
Dry Time (hrs): 16

Standards:

Standard	True Value	Exp. Date	% Rec.
NaCl MW# ANH0704231	175 mg/L	5-23-07	85-115
Na2SO4 MW# ANH0704097	700 mg/L	5-09-07	85-115
NaCl MW# MUE0704257	10 mg/L	5-25-07	50-150

Run #	Sample ID	Client Name	Date Collected	Sample Volume (ml)	Crucible Number	A Crucible Weight (g)	B Crucible + residue 1st wt. (g)	C Crucible + residue 2nd wt. (g)	Residue B-A (g)	TDS (mg/L)	pH	EC	EC*0.6	2nd Weighing/Comments
Blk	Blank	N/A	N/A	50	E8	65.6203	65.6204	65.6203	0.0000	✓ND	na	N/A	N/A	
MRL	MRL 1 - 10 mg/L	N/A	N/A	100	1A	67.2128	67.2138	67.2139	0.0010	✓10		N/A	N/A	100%
MRL	MRL 1 - 10 mg/L DUP	N/A	N/A	100	A2	73.7663	73.7674	73.7674	0.0011	11		N/A	N/A	110%
LCS	LCS 1 - 175 mg/L	N/A	N/A	50	1B	79.4587	79.4682	79.4682	~~0.0096~~ 0.0095	✓190 ~~180~~		N/A	N/A	109%
LCS	LCS 2 - 700 mg/L	N/A	N/A	50	C1	72.8035	72.8388	72.8388	0.0353	✓706	↓	N/A	N/A	101%
1	2707020835	[redacted]	5-02	50	U1	73.0272	73.0413	73.0414	0.0141	✓282	7	441	265	
Dup	835	↓	↓	50	V7	70.5395	70.5530	70.5530	0.0135	✓270		441	265	
2	837	Kerr Mcgee	5-01	2	D1	69.4860	69.5157	69.5158	0.0297	✓14850		16060	9636	
3	838			2	KF	70.7653	70.7954	70.7955	0.0301	✓15050		17230	10338	
4	839			2	2N	68.5722	68.5946	68.5945	0.0223	✓11150		12340	7404	
5	840			2	OW	67.3565	67.3927	67.3929	0.0362	✓18100		18130	10878	
6	841			2	A9	70.0025	70.0367	70.0368	0.0342	✓17100		18290	10974	
7	842			2	Z3	64.7512	64.7877	64.7872	0.0310	✓15500		16170	9702	
8	843			2	T2	67.4029	67.4285	67.4289	0.0256	✓12800		14070	8442	
9	844			2	AA	69.1471	69.1666	69.1667	0.0195	✓9775		12690	7614	
10	845			2	AB	57.2053	57.2237	57.2237	0.0184	✓9200		12120	7272	
11	846			2	K1	70.8705	70.8862	70.8863	~~0.0157~~ 0.0157	7850		11150	6990	=
Dup	846			2	AC	67.2971	67.3134	67.3134	0.0163	8150		11650	6990	=
12	847			5	ZR	67.4954	67.5325	67.5328	0.0371	✓7420		10000	6000	
13	848			10	AD	70.5653	70.6270	70.6271	0.0617	✓6170		8946	5368	
14	849			10	CR	68.4366	68.5051	68.5051	0.0685	✓6850		9438	5663	
15	850			10	AE	65.9239	66.0037	66.0038	0.0798	✓7980		9728	5837	
16	851			25	D12	68.7935	68.9214	68.9215	0.1279	✓5116		6905	4143	
17	852			2 ml	SM	53.1417	53.1554	53.1555	0.0137	✓6850		10710	6426	
18	853			~~25~~ 10	A6	~~50.8086~~ 50.8086	50.8859	50.8860	0.0773	✓7730		9199	5519	
19	854			2	AF	50.7635	50.7837	50.7838	0.0202	✓10100		12160	7296	
20	855	↓	↓	25	AH	50.8047	50.9154	50.9155	0.1107	✓4428	↓	6216	3730	

MRL: 10 mg/L
st. EC*(0.55 - 0.7): expected TDS value
Min/Max Residue: 0.5mg - 200 mg

Holding time: 7 day from sampling date

Drying Efficiency: < 4% or 0.5 mg

% change = |Init - Fin| * 100 / Init

Recoveries:
Blank - < 0.5mg
MRL - 50%-150%
LCS - 85%-115%
Duplicates - <10% RPD

Calculation:
TDS (mg/L) = [C-A] / B * 1,000,000

%RPD = |S1-S2| / ((S1+S2)/2) * 100

A = Crucible wt (g)
B = Sample Vol (ml)
C = Crucible+residue (g)

S1 = TDS of sample
S2 = TDS of duplicate

MWH Laboratories
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

/ 930

TOTAL DISSOLVED SOLIDS (TDS) MW SOP REVISION 6
SM2540C

Analysis start date: 5-17-17 End: 5-18-17
Analyst: MARIN
Reviewed By:
LIMS Check By: 5/22/17
Was QC Criteria Met: Y N
Was QIR Needed: Y N

Oven Temp (180°±2°C): Start 180 C End: 180 C
Oven Mfr: "Precision STM135" Ser no.: "11AW-6"

Dry Time (hrs): 16

Standards:

	True Value	Exp. Date	% Rec.
NaCl MW# ANAT0423-1	175 mg/L	5-23-17	85-115
Na2SO4 MW# ANHT0497	700 mg/L	5-09-17	85-115
NaCl MW# MUET0425	10 mg/L	5-25-17	50-150

Run #	Sample ID	Client Name	Date Collected	Sample Volume (ml)	Crucible Number	A Crucible Weight (g)	B Crucible + residue 1st wt. (g)	C Crucible + residue 2nd wt. (g)	Residue B-A (g)	TDS (mg/L)	pH	EC	EC*0.6	2nd Weighing/Comments
Blk	Blank	N/A	N/A	50	AL	55.1604	55.1604	55.1605	0.0001	ND		N/A	N/A	
MRL	MRL 1 - 10 mg/L	N/A	N/A	100	AI	71.1091	71.1082	71.1083	0.0011	11		N/A	N/A	
MRL	MRL 1 - 10 mg/L DUP	N/A	N/A	100	AH	71.4085	71.4097	71.4097	0.0012	12		N/A	N/A	9107.
LCS	LCS 1 - 175 mg/L	N/A	N/A	50	MF	69.1414	69.1494	69.1493	0.0080	180		N/A	N/A	120%
LCS	LCS 2 - 700 mg/L	N/A	N/A	50	ZZ	68.5232	68.5563	68.5563	0.0331	662		N/A	N/A	103%
1	2705D20856	Kerr Mcgee	5-01	50	YD	50.3830	50.4491	50.4491	0.0661	1322		1942	1165	95%
Dup	856			50	CY	66.4211	66.4903	66.4903	0.0692	1384		1942	1165	
2	857			25	TP	68.1296	68.2228	68.2229	0.0933	3808		5741	1045	
3	858			25	XS	65.9470	66.0944	66.0944	0.1474	5896		7630	4578	
4	859			25	V6	71.2001	71.2796	71.2796	0.0795	3180		4479	2687	
5	860			5	V2	66.9911	67.0780	67.0781	0.0869	17380		10780	6468	
6	861			50	G4	50.4243	50.4863	50.4864	0.0620	1240		143	85.8	
7	862			25	E3	68.2664	68.3453	68.3454	0.0789	3156		4766	2620	
8	863			25	PH	69.4105	69.4913	69.4913	0.0808	3232		4530	2718	
9	864			10	FB	79.2009	79.2627	79.2628	0.0618	6180		8801	5281	
10	867	[illegible]	4-23	50	G1	66.5834	66.6031	66.6071	0.0197	394		582	349	#3
11	868	[illegible]	5-01	50	S6	73.4912	73.5058	73.5059	0.0097	194		333	200	—
Dup	868			50	QR	79.9657	79.9750	79.9750	0.0093	186		333	200	—
12	869			50	DT	69.6601	69.6673	69.6673	0.0072	144		256	154	
13	877	[illegible]		50	A	52.5777	52.5880	52.5881	0.0103	206		354	212	
14	2704300163	[illegible]	4-24	100	RF	68.1934	68.1968	68.1968	0.0034	34		35.2	21.1	RETURN OUT OF HA
15	5010717	Kerr Mcgee	4-30	100	IH	79.6272	79.6282	79.6283	0.0010	10		17.5	10.5	RETURN
16														
17														
18														
19														
20														

MRL: 10 mg/L
st. EC*(0.55 - 0.7): expected TDS value
Min/Max Residue: 0.5mg - 200 mg

Holding time: 7 day from sampling date

Drying Efficiency: % change = |Init - Fin| * 100 / Init
< 4% or 0.5 mg

Recoveries:
Blank - < 0.5mg
MRL - 50%-150%
LCS - 85%-115%
Duplicates - <10% RPD

Calculation:
TDS (mg/L) = [C-A] / B * 1,000,000

%RPD = |S1-S2| * 100 / (S1+S2)/2

A = Crucible wt (g)
B = Sample Vol (ml)
C = Crucible+residue (g)

S1 = TDS of sample
S2 = TDS of duplicate

totdissol.xls

Standard Preparation Worksheet & Certificate of Analysis

Reagent Preparation Documentation

Page:_____

Reagent: NH3 EDTA Buffer
Date Received/Prepped: 03-14-07 04-16-07 / / /
Date Expired: 04-14-07 05-16-07 / / /
Manufacturer:
Storage Condition:

MW #: MLE070214-5
By: MLE
Matrix: LIQ
Amount: 1L
Lot #:

M / Component	Comment	Standard	Concentration
4/11 R201363	50g EDTA to vol 1L w/ DI H2O preserved w/ 25.4		
	ml 10N NaOH		

Comment:

Reagent: CN PYR-BARB
Date Received/Prepped: 03-21-07 / / / /
Date Expired: / February expiry Rule /
Manufacturer:
Storage Condition:

MW #: MLE070321-1
By: MLE
Matrix: AQ
Amount:
Lot #:

Component	Comment	Standard	Concentration
6.0g	Barbituric Acid	R201106	10/11
30ml	Pyridine } to 1000ml	R201500	10/09
6.0ml	conc HCl vol w/DIH2O	R100412	12/11

Comment:

Reagent: TDS 10ppm MRL
Date Received/Prepped: 04 29 07 / / / /
Date Expired: 05 29 07 / / / /
Manufacturer:
Storage Condition: ROOM TEMP

MW #: MLE070425-1
By: MLE
Matrix: AQ
Amount: 1L
Lot #:

Component	Comment	Standard	Concentration
	1.0 ml 10,000 ppm NaCl to 1L w/ DI H2O (R201617) exp. ~~4-24~~ 10-23-08		

Comment:

R201617 rec'd 4-24-07

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Innovative Solutions in Analytical Science and Technology

Expiry: 10/23/2008

Certificate of Analysis

Part Number: **4400-051014RH02**
Lot Number: **07D196**
Shelf Life: **18 months**

MWH
Custom NaCl
H2O

Concentrations in ug/mL ± 0.5%

NaCl	10000

This standard solution was prepared using high-purity starting materials, high-purity acid (if required) and 18-megaohm de-ionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed at 1000µg/mL by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against the National Institute of Standards and Technology's SRM 3100 series, NIST approved second source and/or gravimetrically.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for the stated shelf life from the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA, +31 20 638 05 97 in Europe or visit our web-site at www.cpiinternational.com.

Reagent Preparation Documentation

Reagent: TDS 10 PPM MRL
Date Received/Prepped: 2.26.07 / 3.15.07 / 4.20.07 / / /
Date Expired: 3.26.07 / 4.15.07 / 5.20.07 / / /
Manufacturer:
Storage Condition: ROOM TEMP.

MW #: ANH 070219-
By: ANH
Matrix: 1
Amount: 1 L
Lot #:

Component	Comment	Standard	Concentration
100ML of 100ppm of	TDS solutions in 1L DI H_2O	TDS/MRL	10 PPM
100ML of 100ppm	of TDS Solution in 1L D.I H_2O	TDS/MRL	10 PPM
" "	" "	"	"

Comment:

Reagent: TDS 10ppm MRL
Date Received/Prepped: 09.9.07 / / / / /
Date Expired: 5.9.07 / / / / /
Manufacturer:
Storage Condition:

MW #: ANH070409-1
By: ANH
Matrix: 1
Amount: 1 L
Lot #:

Component	Comment	Standard	Concentration
100ML of 100ppm	of TDS Solution in 1L DI H_2O	TDS/MRL	10 ppm

Comment:

Reagent:
Date Received/Prepped: / / / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #:
By:
Matrix:
Amount:
Lot #:

Component	Comment	Standard	Concentration

Comment:

Reagent Preparation Documentation

Page: 10

Reagent: Nacl 175 ppm for TDS LCS1
Date Received/Prepped: 4/23/21 / / / /
Date Expired: 5/23/21 / / / /
Manufacturer:
Storage Condition:

MW #: ANH 070423
By: ANH
Matrix: 1
Amount: 1L
Lot #:

Component	Comment	Standard	Concentration
3.5ml of 5%	Nacl Diluted into 1L	LCS 1	175 ppm
	D.I H_2O		
	R# 201259		

Comment: New STD has not arrived, Used expired STD

Reagent:
Date Received/Prepped: / / / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #:
By:
Matrix:
Amount:
Lot #:

Component	Comment	Standard	Concentration

Comment:

Reagent:
Date Received/Prepped: / / / / /
Date Expired: / / / / /
Manufacturer:
Storage Condition:

MW #:
By:
Matrix:
Amount:
Lot #:

Component	Comment	Standard	Concentration

Comment:

rec'd 24 Oct 05

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1000 CS Amsterdam Fax +31 20 420 28 36
The Netherlands www.cpiinternational.com

Expiry: APR 2 0 2007

R201259

Certificate of Analysis

Part Number: **4400-051014RH02**
Lot Number: **05J176**
Shelf Life: **18 months**

MWH
Custom NaCl
H2O

Concentrations in ug/mL ± 0.5%

NaCl	10000

This standard solution was prepared using high-purity starting materials, high-purity acid (if required) and 18-megaohm de-ionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed at 1000µg/mL by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against the National Institute of Standards and Technology's SRM 3100 series, NIST approved second source and/or gravimetrically.

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