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Level IV Data Package

MWH Group 212263

Method: 160.1 TDS

Sample No.:

2708030224
2708030225
2708030226
2708030227
2708030228
2708030229
2708030230
2708030231
2708030232
2708030233
2708030234
2708030235

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

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1500

TOTAL DISSOLVED SOLIDS (TDS) MW SOP REVISION 6
SM2540C

Analysis start date: 08/07/07 End: 08/09/07
Analyst: Yvette
Reviewed By: [illegible] 8/10/07
LIMS Check By: [illegible] 8/13/07
Was QC Criteria Met: (Y) N
Was QIR Needed: Y (N) WBM 8/7/07

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

Dry Time (hrs): 12

Standards:

	True Value	Exp. Date	% Rec.
NaCl MW# YX 070604-1	175 mg/L	12/4/07	85-115
Na2SO4 MW# YX070608-1	700 mg/L	12/8/07	85-115
NaCl MW# YX070621-1	10 mg/L	12/21/07	50-150

Run #	Sample ID	Client Name	Date Collected	B Sample Volume (ml)	Crucible Number	A Crucible Weight (g)	C Crucible + residue 1st wt. (g)	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	N2	50.6947	50.6944	50.6943	R0.0003	-6 (ND)	N/A	N/A	N/A	
MRL	MRL 1 - 10 mg/L	N/A	N/A	100	PL	66.9528	66.9530	66.9530	0.0012	12	N/A	N/A	N/A	
MRL	MRL 1 - 10 mg/L DUP	N/A	N/A	100	TN	68.2281	68.2292	68.2289	0.0011	11 ✓	N/A	N/A	N/A	120%
LCS	LCS 1 - 175 mg/L	N/A	N/A	50	VC	50.3051	50.3138	50.3134	0.0083	174 ✓	N/A	N/A	N/A	110%
LCS	LCS 2 - 700 mg/L	N/A	N/A	50	Q	50.2084	50.2427	50.2425	0.0343	686 ✓	N/A	N/A	N/A	99%
1	2708030227	Kenmcgue NV	08/02/07	10	HH	52.6978	52.7629	52.7600	0.0651	6510 ✓	7	8630	5172	52.7624 1.1% RPD
Dup	227	↓	↓	10	KZ	50.9070	50.9729	50.9714	0.0644	6440 ✓	7	8620	5172	50.9718
2	228			50	BR	50.4047	50.5229	50.5213	0.1166	2332 ✓	7	2910	1746	50.5209
3	229			50	115	54.6216	54.7923	54.7904	0.1688	3376 ✓	7	3930	2358	54.7901
4	230			25	RA	68.4060	68.5103	68.5072	0.1012	4048 ✓	7	4980	2820	68.5069
5	231			50	118	55.0200	55.0697	55.0676	0.0497	994 ✓	7	1327	796	55.0693
6	232			50	AE	65.9141	65.9913	65.9896	0.0772	1544 ✓	7	2653	1232	65.9910
7	233			5	S	50.6641	50.7571	50.7517	0.0876	17520 ✓	7	16850	10110	50.7520 Verified 8.13.07
8	234			25	BT	69.6405	69.7254	69.7241	0.0849	3396 ✓	7	4378	2627	69.7256
9	235	↓	↓	25	117	65.8000	65.8816	65.8789	0.0816	3264 ✓	7	4000	2400	65.8813
10	003	[redacted]		50	CR	79.9571	79.9627	79.9624	0.0056	112 ✓	7	186	112	
11	250	[redacted]			T	66.8360	66.8444	66.8444	0.0084	168 ✓	7	300	180	
Dup	250	↓			V6	71.1934	71.2015	71.2017	0.0081	162 ✓	7	300	180	3.6% RPD
12	095	Kenmcgue NV			102	55.0977	55.2629	55.2607	0.1630	3260 ✓	7	3986	2392	55.2607
13	2708020389	[redacted]			RT	74.5042	74.5162	74.5158	0.0120	240 ✓	7	385	231	
14	391	↓			AF	50.5759	50.5874	50.5870	0.0115	230 ✓	7	359	215	
15	2708030254	[redacted]			DDC	70.1030	70.1086	70.1082	0.0050	100 ✓	7	179	107	
16	061	[redacted]	08/03/07		116	50.5086	50.5265	50.5283	0.0179	358 ✓	7	580	348	
17	#2708040012	Kenmcgue			DW	67.3504	67.3850	67.3834	0.0346	692 ✓	7	1072	643	67.3852
18	013				1E	65.6400	65.6751	65.6726	0.0351	702 ✓	7	1079	647	65.6750
19	001				107	66.3488	66.3988	66.3968	0.0504	1008 ✓	7	1390	834	66.3985
20	002	↓	↓	↓	SS	67.0783	67.1281	67.0156	0.0498	996 ✓	7	1321	793	67.1277

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 - 80%-114%
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

totdissol.xls

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

TOTAL DISSOLVED SOLIDS (TDS) MW SOP REVISION 6
SM2540C

1200
Analysis start date: 08/08/07 End: 08/09/07
Analyst: Yvette
Reviewed By: [illegible] 8/13/07
LIMS Check By: [illegible] 8/16/07
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): 3

Standards:

	True Value	Exp. Date	% Rec.
NaCl MW# YX807060A-1	175 mg/L	12/4/07	85-115
Na2SO4 MW# YX807060A-1	700 mg/L	12/8/07	85-115
NaCl MW# YX807062A-1	10 mg/L	12/21/07	50-150

Run #	Sample ID	Client Name	Date Collected	B Sample Volume (ml)	Crucible Number	A Crucible Weight (g)	C Crucible + residue 1st wt. (g)	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	FF	50.4470	50.4468	50.4468	-0.0002	-4 (ND)	N/A	N/A	N/A	
MRL	MRL 1 - 10 mg/L	N/A	N/A	100	B3	76.1742	76.1755	76.1785	0.0013	13	N/A	N/A	N/A	136%
MRL	MRL 1 - 10 mg/L DUP	N/A	N/A	100	MT	66.9019	66.9027	66.9027	0.0008	8	N/A	N/A	N/A	80%
LCS	LCS 1 - 175 mg/L	N/A	N/A	50	KC	52.5539	52.5625	52.5627	0.0086	172	N/A	N/A	N/A	98%
LCS	LCS 2 - 700 mg/L	N/A	N/A	50	IN	67.4031	67.4382	67.4384	0.0351	702	N/A	N/A	N/A	99.7%
1	2708060279	[redacted]	07/24/07	2	IL	68.0849	68.1549	68.1535	0.0686	34300	7	49450	29670	H3 68.1530 0.3% RPD
Dup	279				DY	71.4978	71.5688	71.5666	0.0688	34400	7	49450	29670	H3 71.5668
2	280				SX	68.2730	68.3460	68.3454	0.0724	36200	7	50060	30036	H3 68.3452
3	281			50	B2	65.9985	66.0107	66.0105	0.0122	244	6	465	279	H3
4	282		07/25/07	2	AG	68.8200	68.8907	68.8883	0.0683	34150	7	49090	29454	H3 68.8879
5	283			2	XI	76.3626	76.4366	76.4328	0.0710	35500	7	50200	30120	H3 76.4336 / 76.4336
6	284			50	171	74.2710	74.2823	74.2822	0.0113	226	6	438	263	H3
7	276	[redacted]	07/31/07		L7	67.9946	68.0060	68.0061	0.0114	225	7	389	233	H1
8	2708020099	[redacted]	08/01/07		HA	67.1959	67.2040	67.2043	0.0081	162	7	257	154	
9	101				RII	72.8988	72.9118	72.9119	0.0130	260	7	375	225	
10	094				NY	67.0267	67.0400	67.0396	0.0113	226	7	322	193	
11	095				PE	67.7882	67.8033	67.8032	0.0151	302	7	408	245	
Dup	096				114	68.3193	68.3377	68.3376	0.0184	368	7	468	281	2.2% RPD
12	096				TR	69.4549	69.4729	69.4732	0.0180	360	7	468	281	
13	036				F17	73.5159	73.5872	73.5868	0.0713	1426	7	2117	1270	
14	342	Kennedy MP		10	IC	63.8195	63.8984	63.8969	0.0789	7890	7	8970	#5382	
15	343			100	C3	73.4973	73.4999	73.4994	0.0026	26	7	5841	25	
16	2708030224		08/02/07	50	X2	71.6293	71.7596	71.7596	0.1303	2606	7	3211	1927	71.7591
17	225			25	AS	69.1594	69.3117	69.3105	0.1511	6044	7	7918	4751	69.3107
18	226			25	RP	69.2687	69.3981	69.3862	0.0957	3828	7	4477	2686	69.3844 / 69.3842
19	2708010320	[redacted]	08/01/07	50	KFI	66.1908	66.2252	66.2253	0.0344	688	7	967	580	
20	397			50	29	70.3283	70.3618	70.3620	0.0335	670	7	985	591	

MRL: 10 mg/L
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 - 80%-114%
Duplicates - <10% RPD

WA 8 Aug 07

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

Standard Preparation Worksheet & Certificate of Analysis

Reagent Preparation Documentation

Page: 1

Reagent: TDS MRL 10 ppm Solution
Date Received/Prepped: 05/31/07 / 06/21/07 / 06/26/07 / 06/29/07 / ~~07/04/07~~ 07/12/07
Date Expired: 11/31/07 / 12/21/07 / 12/26/07 / ~~12/29/07~~ 01/29/07 / 01/06/08 / 01/12/08
Manufacturer: —
Storage Condition: Room Temperature

MW #: YXP070531-1
By: ~~YP~~ YXP
Matrix: AQ
Amount: 1 L
Lot #: —

Component	Comment	Standard	Concentration
500 ppm Solution	20 mL and dilute to 1L using DI	YXP070531-2	
500 ppm Solution	20 mL and dilute to 1L using DI	YXP070531-2	
500 ppm Solution	20 mL and dilute to 1L using DI	YXP070531-2	
500 ppm Solution	20 mL and dilute to 1L using DI	YXP070531-2	
500 ppm Solution	20 mL and dilute to 1L using DI	YXP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI	~~YP~~ YXP070531-2	

Comment:

Reagent: TDS 500 ppm Intermediate Solution
Date Received/Prepped: 05/31/07 / / / / /
Date Expired: 11/31/07 / / / / /
Manufacturer: —
Storage Condition:

MW #: YXP070531-2
By: YXP
Matrix: AQ
Amount: 1 L
Lot #: —

Component	Comment	Standard	Concentration
10000 ppm NaCl (CPI)	Take 50 mL and dilute to 1 L using DI	R201617	

Comment:

Reagent: TDS 175 ppm
Date Received/Prepped: 06/03/07 / 06/22/07 / 07/11/07 / 07/23/07 / 08/02/07 / 09/01/07
Date Expired: 11/03/07 / 12/22/07 / ~~08/11/08~~ 01/23/08 / 02/02/08 / 03/01/07
Manufacturer: —
Storage Condition: Room TEMP

MW #: YXP070603-1 ~~YXP070603~~ YP 06/06/07
By: YXP
Matrix: AQ
Amount: 1L
Lot #: —

Component	Comment	Standard	Concentration
10,000 ppm NaCl (CPI)	Take 17.5 mL and dilute to 1L using DI	R201617	
10,000 ppm NaCl	Take 17.5 mL and dilute to 1L using DI	R201617	
10,000 ppm NaCl	Take 17.5 mL and dilute to 1L using DI	R201617	
10,000 ppm NaCl	Take 17.5 mL and dilute to 1L using DI	R201617	
10,000 ppm NaCl	Take 17.5 mL and dilute to 1L using DI	R201617	
10,000 ppm NaCl	Take 17.5 mL and dilute to 1L using DI	R201617	

Comment:

Reagent Preparation Documentation

Reagent: TDS MRL 10 ppm Solution
Date Received/Prepped: 06/06/07 /07/17/07 /07/19/07 /07/25/07 /07/30/07 /08/01/07
Date Expired: 11/04/07 /08/17/07 /01/19/07 /01/25/07 /01/30/07 /02/01/08
Manufacturer: —
Storage Condition: Room Temp.

MW #: YxP070621-1
By: YxP
Matrix: AQ
Amount: 1 L
Lot #: —

Component	Comment	Standard	Concentration
500 ppm Sol'n	20 mL and dilute to 1L using DI	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI	YxP070531-2	
500 ppm Sol'n	20 mL and dilut to 1L using DI	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1 L using DI	YxP070531-2	

Comment:

Reagent: TDS 700 ppm
Date Received/Prepped: 06/08/07 /06/26/07 /07/16/07 /07/31/07 /09/01/07 /9/18/07
Date Expired: 11/04/07 /12/26/07 /01/16/07 /01/31/07 /03/01/08 /03/18/07
Manufacturer: —
Storage Condition: Room Temp

MW #: YxP070608-1
By: YxP
Matrix: AQ
Amount: 1 L
Lot #: —

Component	Comment	Standard	Concentration
Sodium Sulfate	Weighed 0.7 g and diluted with DI to 1L	46282709	
Sodium Sulfate	Weighed 0.7013g and diluted with DI to 1L	46282709	
Sodium Sulfate	Weighed 0.7008g and diluted with DI to 1L	46282709	
Sodium Sulfate	Weighed 0.7006g and diluted with DI to 1L	46282709	
Sodium Sulfate	Weigh 0.7003 g and diluted with DI to 1L	46282709	
Sodium Sulfate	Weigh 0.7017 g and diluted w/ DI to 1L	46282709	

Comment:

Reagent: TDS MRL 10 ppm Solution
Date Received/Prepped: 06/12/07 /08/06/07 /08/09/07 /08/23/07 /8/28/07 /08/31/07
Date Expired: 11/12/07 /02/06/07 /02/09/07 /02/23/07 /02/28/07 /08/31/07
Manufacturer: —
Storage Condition: Room Temp

MW #: YxP070621-1
By: YxP
Matrix: AQ
Amount: 1 L
Lot #: —

Component	Comment	Standard	Concentration
500 ppm Sol'n	20 mL and dilute to 1L using DI water	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI water	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI water	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1L using DI H2O	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1 L using DI H2O	YxP070531-2	
500 ppm Sol'n	20 mL and dilute to 1 L using DI H2O	YxP070531-2	

Comment:

R201617 Recd 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.