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Level IV Data Package

MWH Group 212470

Method: 160.1 TDS

Sample No.:

2708070418
2708070422
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2708070427
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2708070433
2708070434
2708070437
2708070439
2708070440
2708070441
2708070442

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

TOTAL DISSOLVED SOLIDS (TDS) MW SOP REVISION 6
SM2540C

Analysis start date: 08-13-07 End: 08-14-07 Start 16:00
Analyst: maria
Reviewed By: [illegible] 8/16/07
LIMS Check By:
Was QC Criteria Met: Y N
Was QIR Needed: Y N – QIR HA

Oven Temp (180°±2°C): Start 180 C End: 180 C
Oven Mfr: "Precision STM135" Ser no.: "11AW-6"
Dry Time (hrs): 20 hrs

Standards:

	True Value	Exp. Date	% Rec.
NaCl MW# YXP070604	175 mg/L	12-4-07	85-115
Na2SO4 MW# YXP070608	700 mg/L	12-8-07	85-115
NaCl MW# YXP070621-1	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	AH	69.0748	69.0749	69.0749	0.0001	ND	N/A	N/A	N/A	
MRL	MRL 1 - 10 mg/L	N/A	N/A	100	DDC	70.1012	70.1019	70.1020	0.0007	7	N/A	N/A	N/A	70%
MRL	MRL 1 - 10 mg/L DUP	N/A	N/A	100	FQ	69.3539	69.3546	69.3546	0.0007	7	N/A	N/A	N/A	70%
LCS	LCS 1 - 175 mg/L	N/A	N/A	50	IP	79.6202	79.6298	79.6296	0.0096	192	N/A	N/A	N/A	110%
LCS	LCS 2 - 700 mg/L	N/A	N/A	50	AD	70.5597	70.5914	70.5960	0.0367	734	N/A	N/A	N/A	105%
1	2708070428	KM	8-01	25	007	68.4276	68.5257	68.5259	0.0981	3924	7	5241	3145	* 0.72%
Dup	428				HT	75.3942	75.4916	75.4917	0.0974	3896		5241	3145	+
2	429				AA	67.6577	67.7590	67.7592	0.1013	4052		5692	3415	
3	430				IP	64.1316	64.2323	64.2324	0.1007	4028		5575	3309	
4	431				TT	70.8234	70.9179	70.9177	0.0945	3780		5029	3017	
5	432			10	IX	70.3067	70.3696	70.3695	0.0629	6290		8620	5172	
6	433			25	WV	71.3652	71.4507	71.4504	0.0852	3420		4640	2784	
CD	434				0H2	66.4689	66.5813	66.5715	0.1028	4112		5861	3517	
8	437				0012	79.3195	79.4069	79.4065	0.0874	3496		5754	3092	
9	439				YR	66.2795	66.3501	66.3503	0.0706	2824		4215	2529	
10	440				X	68.2410	68.3060	68.3056	0.0650	2600		3822	2293	
11	441				TP	68.0346	68.1162	68.1164	0.0816	3264		4548	2729	
Dup	441				2P	69.6714	69.7537	69.7537	0.0823	3292		4548	2729	*
12	442				V91	72.1207	72.2017	72.2021	0.0810	8100		9130	5478	+ 0.55%
13	2708080190	[redacted]	8-08	10	C7	79.2989	79.3326	79.3325	0.0337	674		823	494	
14	192			50	15	64.3440	64.3880	64.3878	0.0440	880		1000	600	
15	193				1D	77.3215	77.3589	77.3588	0.0374	748		1000	600	
16	194				001	70.8172	70.8572	70.8573	0.0340	680		1000	600	
17	283	[redacted]			101	67.5420	67.5626	67.5624	0.0205	410		670	402	
18	296				BB	72.7271	72.7415	72.7415	0.0144	288		472	283	
19	310				W2	72.1365	72.1554	72.1552	0.0189	378		667	400	
Dup	2708030233	KM	8-02	2	01F	66.8734	66.9133	66.9137	0.0399	19950		17410	10446	HA

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

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

TD 14 Aug 07

2

1

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

TOTAL DISSOLVED SOLIDS (TDS) MW SOP REVISION 6
SM2540C

Analysis start date: 08/09/07 1200 End: 08/10/07
Analyst: YsMc
Reviewed By: [illegible] 8/13/07
LIMS Check By: MM 8/14/07
Was QC Criteria Met: (Y) N
Was QIR Needed: (Y) N W3r 8/9/07

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

Dry Time (hrs): + 2

Standards:

	True Value	Exp. Date	% Rec.
NaCl MW# YxP070604-1	175 mg/L	12/4/07	85-115
Na2SO4 MW# YxP07 0604-1	700 mg/L	12/6/07	85-115
NaCl MW# YxP070621-1	10 mg/L	12/21/07	50-150

Run #	Sample ID	Client Name	Date Collected	B Sample Volume (ml)	A Crucible Number	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	1M	50.9408	50.9409	50.9406	0.0001	2 (ND)	N/A	N/A	N/A	
MRL	MRL 1 - 10 mg/L	N/A	N/A	100	N1	73.9272	73.9281	73.9279	0.0009	9	N/A	N/A	N/A	90%
LCS	LCS 1 - 175 mg/L	N/A	N/A	100	J1	73.6600	73.6607	73.6605	0.0007	7	N/A	N/A	N/A	70%
LCS	LCS 2 - 700 mg/L	N/A	N/A	50	U	50.5123	50.5208	50.5206	0.0085	170	N/A	N/A	N/A	97%
1	270804 0008	Kennicott	08/03/07	5	AH	50.7851	50.8191	50.8189	0.0340	6800	N/A	N/A	N/A	97%
Dup	008				2A	69.3914	69.4618	69.4615	0.0704	14080	7	13240	7944	0.6% RPD
3	009				TD	70.7161	70.7869	70.7870	0.0708	14160	7	13240	7944	
4	010			50	CS	51.5194	51.5995	51.5975	0.0781	15620	7	14400	8640	51.5971
5	011			25	F3	74.7222	74.8672	74.8669	0.1450	2900	7	3704	2222	
6	270806 0221	[redacted]	08/06/07	50	Q3	50.3488	50.4331	50.4329	0.0843	3372	7	4435	2661	
7	220				TC	68.1240	68.1391	68.1390	0.0151	302	7	495	297	
8	134	[redacted]			UR	79.0080	79.0272	79.0270	0.0192	384	7	613	368	
9	270806 0681	[redacted]			J3	75.4163	75.4496	75.4500	0.0333	666	7	1000	600	
10	539				FV	67.7096	67.7159	67.7155	0.0063	126	7	203	122	
11	651				C5	69.5830	69.5903	69.5899	0.0073	146	7	240	144	
Dup	599	[redacted]			6S	66.8672	66.8739	66.8735	0.0067	134	7	231	139	
12	X 200				PY	64.3496	64.3789	64.3789	0.0293	586	7	899	539	
13	418	Kennicott	08/07/07		AR	79.5544	79.5831	79.5832	0.0287	574	7	899	539	2.1% RPD
14	422		08/08/07	10	P9	79.8626	79.8819	79.8815	0.0189	366	7	582	349	
15	423			5	010	72.6035	72.6694	72.6690	0.0659	6590	7	10000	6000	
16	424			10	I3	73.4363	73.4841	73.4840	0.0478	9560	7	15000	9000	
17	425				RL	51.3005	51.3922	51.3919	0.0857	8570	7	10000	6000	
18	426				DA	49.6937	49.7558	49.7557	0.0621	6210	7	8800	5280	*
19	427			5	FU	51.2010	51.2763	51.2746	0.0736	7360	7	10000	6000	51.2745
20	270806 0428			5	8	50.3112	50.4234	50.4219	0.0507	10140	7	14500	8700	50.4222
	228				MH	52.1053	52.1531	52.1520	0.0467	9340	7	14600	8760	52.1516
			08/09/07	5010	SM	50.8130	50.8725	50.8714	0.0595	5950	7	8855 8860	5280	Rerun 50.8720

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

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

Reagent: TDS MRL 10 ppm Solution
Date Received/Prepped: 05/31/07 / 06/21/07 / 06/26/07 / 06/29/07 / ~~07/06/07~~ 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 (CP1)	Take 50 mL and dilute to 1 L using DI	R201617	

Comment:

Reagent: TDS 175 ppm
Date Received/Prepped: 06/03/07 / 06/20/07 / 07/11/07 / 07/23/07 / 08/02/07 / 09/01/07
Date Expired: 11/03/07 / 12/22/07 / ~~2011/11/08~~ / 01/23/08 / 02/02/08 / 03/01/07
Manufacturer: —
Storage Condition: Room TEMP

MW #: YXP070603-1 ~~YXP070503-1~~ YP 06/04/07
By: YXP
Matrix: AQ
Amount: 1L
Lot #: —

Component	Comment	Standard	Concentration
10,000 ppm NaCl (CP1)	Take 17.5 mL and dilute to 1 L 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 1 L 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: 11/06/07 / ~~07~~ 08/17/07 / 01/19/07 / 01/25/07 / 01/30/07 / 02/01/08
Manufacturer: —
Storage Condition: Room Temp.

MW #: YxP070621-1 ~~YxP070606-1~~ rr
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 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: 05/08/07 / 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 0.7008 g 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 110 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 / 08/23/07 / 02/28/07 / 08/31/07
Manufacturer: —
Storage Condition: Room Temp

MW #: YxP070621-1 ~~YxP070618-1~~ rr
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 Rec'd 4-24-07

CPI INTERNATIONAL

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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.