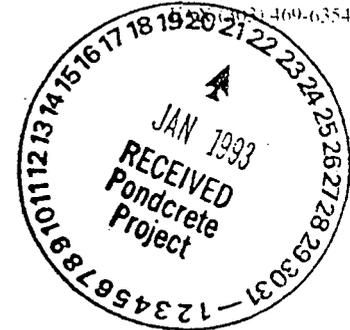


January 20, 1993



Mr. Thomas D. Beckman
Contract Technical Representative
Solar Ponds Remediation Program
EG&G Rocky Flats, Inc.
Building 080
P. O. Box 464
Golden, Colorado 80402-0464

Subject: Rocky Flats Plant Solar Evaporation Ponds Stabilization Project
[WBS 262 PONDCRETE TREATABILITY STUDY PHASE ONE & WBS 272 SALTCRETE
TREATABILITY STUDY PHASE ONE - HALLIBURTON NUS ROCKY FLATS]
BASELINE CHARACTERIZATION ANALYSIS
RF-HED-93-0046

Dear Mr. Beckman:

Enclosed for your use are the results of the baseline characterization analyses of Pondcrete/Saltcrete. These characterization tests were performed to provide baseline analysis of the Treatability Study samples that are anticipated to be used for all subsequent Treatability Study work. This data has been validated per the requirements of SW-846.

We are continuing work on PHASE IA & IB of the approved Treatability Study work plan as funding limitations allow.

Please contact me if you have any questions or comments.

Sincerely,

HALLIBURTON NUS CORPORATION

Ted A. Bittner
Project Manager

TAB/jg

Enclosure:

(Pondcrete/Saltcrete Treatability Study [REV. 0] work performed at HALLIBURTON NUS Laboratory, Pittsburgh, PA for EG&G Rocky Flats Plant Stabilization Project - January, 1993 - Tom Snare)

cc: S. Heiman

A:ULTRIBECKMAN23
RF-HED-93-0046

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CLASSIFICATION OFFICE



Halliburton NUS
CORPORATION

INTERNAL CORRESPONDENCE

C-49-01-3-117

TO: TED BITTNER
FROM: TOM SNARE *TLS*
SUBJECT: PONDCRETE/SALTCRETE
TREATABILITY STUDY WORK
REV. 0

DATE: JANUARY 19, 1993

COPIES: RICH NINESTEEL
JOHN SCHMIDT
JOHN ZAK
DON BRENNEMAN
SHAJ MATHEW

The pondcrete/saltcrete treatability study samples were submitted for baseline characterization analyses. This validated data is provided in Table 1-1, "Initial Characterization of Pondcrete/Saltcrete Treatability Study Samples".

Two tests from phase 1A of the treatability study work plan for pondcrete/saltcrete, four tests in all, have been initiated. The associated procedures and data generated for this testing are included as attachments. The dissolution test for saltcrete was started but not completed before the laboratory testing was put on hold.

No further pondcrete/saltcrete treatability study work is planned until additional funding is made available.

TLS/jdc

Attachments

RECEIVED

JAN 20 1993

H. NUS ROCKY FLATS

TABLE 1-1

INITIAL CHARACTERIZATION OF PONDCRETE/SALTCRETE TREATABILITY STUDY SAMPLES
ROCKY FLATS PLANT, COLORADO

Analysis	Units	Pondcrete Triwall	Pondcrete Metal	Saltcrete Triwall	Saltcrete Metal	Saltcrete Halfcrete
ORGANICS						
Methanol	mg/kg	<10UJ	NA	NA	NA	NA
ZHE Methanol	mg/l	<1UJ	NA	NA	NA	NA
INORGANICS						
Aluminum	mg/kg	25100J	27300J	5030J	5210J	8260J
Antimony	mg/kg	31.7U	27.5U	24.2U	24.8U	24.0U
Arsenic	mg/kg	12.7U	11.0U	9.7U	10.2	13.8
Barium	mg/kg	236	253	96.1	82.5	173
Beryllium	mg/kg	261	299	3.5	3.1	1.3
Cadmium	mg/kg	1680	2070	3.1	2.5U	4.1
Calcium	mg/kg	206000	212000	102000	102000	178000
Chromium	mg/kg	1020	1170	23.0	19.8	53.2
Cobalt	mg/kg	11.1	11.4	4.6	4.6	4.8
Copper	mg/kg	591	676	17.7	17.7	28.4
Iron	mg/kg	9710	10000	4680	4010	8140
Lead	mg/kg	75.6	88.7	3.6UJ	3.7UJ	3.6UJ
Magnesium	mg/kg	11700	13300	1540	1900	3350
Manganese	mg/kg	395	481	135	229	145
Mercury	mg/kg	81.2J	85.8J	0.12UJ	0.12UJ	0.11UJ
Nickel	mg/kg	315	364	30.5	39.4	26.9
Potassium	mg/kg	34200	36200	110000	112000	116000
Selenium	mg/kg	11.1U	154U	8.5U	8.7U	8.4U
Silver	mg/kg	66.8	75.1	28.0	38.3	35.7
Sodium	mg/kg	62300	62100	161000	154000	95100J
Thallium	mg/kg	25.4UJ	5.5UJ	77.5UJ	5.0UJ	4.8UJ
Vanadium	mg/kg	101	88.8	63.3	35.9	139
Zinc	mg/kg	379	268	47.1	33.1	75.4
Boron	mg/kg	152	134	382	721	119
Silicon	mg/kg	3640	4740	913	704	919
Strontium	mg/kg	786	844	354	380	581
Tin	mg/kg	7.9U	6.9U	6.1U	6.2U	6.0U

TABLE 1-1
 INITIAL CHARACTERIZATION OF PONDCRETE/SALTCRETE TREATABILITY STUDY SAMPLES
 ROCKY FLATS PLANT, COLORADO
 PAGE TWO

Analysis	Units	Pondcrete Triwall	Pondcrete Metal	Saltcrete Triwall	Saltcrete Metal	Saltcrete Halfcrate	TC (1) Standard	LDR (2) Standard
TCLP Metals								
Aluminum	ug/l	193	60.0	681	108	99.0	NS	NS
Arsenic	ug/l	80.0U	121	144	148	161	5000	NS
Barium	ug/l	666U	487U	576U	548U	962	100000	NS
Cadmium	ug/l	7040	351	6.0U	13.0U	5.0U	1000	66
Calcium	ug/l	2420000	1230000	1040000	1220000	1370000	NS	NS
Chromium	ug/l	1790	2520	165	97.0	505	5000	5200
Iron	ug/l	20.0U	20.0U	69.0	20.0U	59.0	NS	NS
Lead	ug/l	30.0UJ	30.0UJ	30.0UJ	30.0UJ	30.0UJ	5000	510
Magnesium	ug/l	82800	43100	255	691	90.0	NS	NS
Mercury	ug/l	34.0	0.20U	0.20U	0.20U	0.20U	200	NS
Nickel	ug/l	434	67.0	71.0	199	56.0	NS	320
Selenium	ug/l	70.0U	70.0U	70.0U	70.0U	70.0U	1000	NS
Silver	ug/l	5.0U	5.0U	5.0U	5.0U	5.0U	5000	72
pH	Units	7.5	6.5	12.0	10.8	12.0	NS	NS
ASTM Leach								
Sulfate	mg/l	820	610	1900	2200	2500		
Nitrate	mg/l	840	1100	3400	2600	2400		
Chloride	mg/l	180	260	830	1100	1500		
Phosphorous	mg/l	0.20	0.36	0.29	0.32	0.33		
Total Dissolved Solids	mg/l	7900	8600	28000	28000	16000		
% Recovery of Solids	%	69.4	67.0	26.2	25.6	42.0		

TABLE 1-1
 INITIAL CHARACTERIZATION OF PONDCRETE/SALTCRETE TREATABILITY STUDY SAMPLES
 ROCKY FLATS PLANT, COLORADO
 PAGE THREE

Analysis	Units	Pondcrete Triwall	Pondcrete Metal	Saltcrete Triwall	Saltcrete Metal	Saltcrete Halfcrete
MISCELLANEOUS						
pH	Units	12.3	12.2	12.9	13.0	13.0
Total Organic Carbon	mg/kg	5400J	5900J	4200J	4600J	4900J
Ammonia	mg/kg	<20UJ	<20UJ	<20UJ	<20UJ	<20UJ
Bulk Density	g/cc	0.74	0.58	0.67	0.67	0.89
Total Cyanide	mg/kg	27J	29J	170J	170J	230J
Amenable Cyanide	mg/kg	-30J	-27J	-35J	-35J	440J
Alkalinity, Phenolphthalein	mg/kg	10000J	8500J	57000J	57000J	63000J
Alkalinity, Methyl Orange	mg/kg	14000	13000	61000	61000	66000
Chloride	mg/kg	3100J	2400J	22000J	22000J	25000J
Nitrate	mg/kg	13000J	12000J	47000J	47000J	24000J
Sulfate	mg/kg	8900J	8700J	42000J	42000J	48000J
Alkalinity, Carbonate	mg/kg	8000	9000	8000	8000	6000
Specific Conductance	umhos/cm	50000	46000	170000	170000	160000
Sulfide	mg/kg	<4UJ	<4UJ	<4UJ	<4UJ	<4UJ
Phosphorus	mg/kg	140J	69J	73J	73J	55J
Americium-241	pCi/g	5200 +/- 600	6800 +/- 700	130 +/- 20	130 +/- 20	29 +/- 3
Plutonium-239/240	pCi/g	890 +/- 90	1000 +/- 100	29 +/- 15	29 +/- 15	58 +/- 15
% Solids	%	63.0	72.6	80.7	80.7	83.2
Karl Fisher	% water	34	25	21	21	19
Specific Gravity f-grn	---	2.82	2.64	2.91	2.91	2.86
Fluoride	mg/kg	23000J	30000J	5400J	5400J	56000J

- (1) IC Standard - Standards for metal compounds regulated by 40 CFR 261.24 for the characteristic of toxicity.
 (2) LDR Standard - Standard for metal compounds regulated by 40 CFR 268 for F006, F007, F009, and D006.

NA - Not Analyzed
 ZHE - Zero Headspace Extraction
 NS - No Standard

Data Qualifiers:

U - Non-detect
 UJ - Estimated Non-detect
 J - Estimated

LAB TEST #1

PONDCRETE: SATURATION TDS VERSUS TEMPERATURE

PURPOSE:

To determine the saturation Total Dissolved Solids (TDS) concentration versus temperature.

PROCEDURE:

This experiment is performed for both Pondcrete Triwalls and Pondcrete Triwalls in metal containers. Analytical results are provided in Table 1-1.

Pondcrete Triwalls:

1. In three separate 600 ml beakers, place 200 ml of D.I. water. Weigh 100 grams of Pondcrete for each beaker and dissolve in D.I. water. Mix well, 30 minutes to 1 hour, to assure a saturated solution.
2. Place one of the beakers in an ice bath to drop the temperature of the solution to approximately 50°F. Place another beaker on a heating plate to raise the temperature to approximately 100°F. Leave one of the beakers at room temperature, approximately 70°F.
3. For all of the beakers, allow any suspended solids to settle and then record the temperature of the solution and record. Using a vacuum pipette suction set-up, decant 100 ml of the supernatant and submit for Total Solids (TS) and specific gravity (S.G.) analysis. The result for the total solids analysis is actually the TDS values due to the decanting step.

Pondcrete Triwalls in Metal Containers:

1. In three separate 600 ml beakers place 300 ml of D.I. water. Weigh 150 grams of Pondcrete for each beaker and dissolve in water. Mix well to assure a saturated solution.
2. Place one of the beakers in an ice bath to drop the temperature of the solution to approximately 50°F. Place one beaker on a heating plate to raise the temperature to approximately 100°F. Leave one of the beakers at room temperature, approximately 70°F.
3. For all of the beakers, allow any suspended solids to settle and then record the temperature of the solution and record. Using a vacuum pipette suction set-up, decant 100 ml of the supernatant and submit the sample for TS and S.G. analysis.

TABLE 1-1

SATURATION TABLE FOR TEST #1

Sample I.D.	Temperature (°F)	Date Submitted	Lab P#	Analytical Results		
				Total (Dissolved) Solids	Specific Gravity	Calculated % TDS
Triwalls						
PCTW - 1A	37.5 °F	10/15/92	P214700	61000 mg/l	1.040	5.86%
PCTW - 1B	71.8 °F	10/15/92	P214701	68000 mg/l	1.040	6.54%
PCTW - 1C	113.7 °F	10/15/92	P214702	75000 mg/l	1.045	7.18%
Triwalls in Metal						
PCM - 1A	40.4 °F	10/15/92	P214703	73000 mg/l	1.045	6.98%
PCM - 1B	64.0 °F	10/15/92	P214704	70000 mg/l	1.045	6.70%
PCM - 1C	104.2 °F	10/15/92	P214705	79000 mg/l	1.045	7.56%

NOTE: It was noted that the temperature of the settled solids for the heated portion of this experiment averaged 40 to 50°F higher than the recorded supernatant temperature.

LAB TEST #2

DISSOLUTION TEST OF PONDCRETE IN WATER

PURPOSE:

To determine the soluble and insoluble portions of the Pondcrete Triwalls and Pondcrete Triwalls in metal containers samples.

PROCEDURE:

A. INSOLUBLE MATERIAL

This test will determine the insoluble portion of the Pondcrete Triwalls and Pondcrete Triwalls in Metal Containers samples. Analytical results are recorded in Table 2-1.

1. Weigh out 310 g of the Pondcrete sample. Homogenize and place 10 grams in oven for a percent solids measurement. Record results in Table 2-2. Split remaining portion into three 100 g samples. Record weight of sample added.
2. Add 500, 1000, and 2000 ml of D.I. water to dissolve the Pondcrete sample. The sample should be stirred continuously for approximately one hour.

NOTE: 100 ml of the total D.I. water should be added as rinse during the filter Step #4.

3. Weigh a piece of filter paper, glass wool, and drying pan.⁽¹⁾
4. Filter the solution through the filter media using a vacuum set-up.
5. Submit filtrate for TS and S.G. analysis. Note that the total solids analysis is actually the total dissolved solids due to the filter step.
6. Remove the filter media containing the solids and place in drying pan. Dry in a 103°F oven overnight. Weigh and record the dried filter media, pan, and sample.
7. After determining the weight of the insoluble sample portion, submit the dry solids for S.G. discrete particles analysis.
8. Repeat this experiment at 100°F.
9. Test to be performed for both Triwalls and Triwalls in metal containers.

(1) During testing it was discovered that glass wool may be getting into the material submitted for specific gravity of discrete particles after drying in oven. In place of the pre-filter a four system partial filter was set-up to evenly distribute the solids. In place of the glass wool, now weight out four filter papers.

B. SOLUBLE MATERIAL

This test will determine the soluble portion of the Pondcrete samples. Analytical results are recorded in Table 2-3.

1. Weigh out 200 grams of Pondcrete sample. Dissolve the sample in 200 ml of D.I. water (1:1 ratio). Stir continuously for approximately 1 hour to assure a saturated solution.
2. Weigh out 100 grams of pondcrete sample. Dissolve Pondcrete in 200 ml of D.I. water (1:2 ratio). Stir continuously for approximately 1 hour.
3. Weigh out 100 grams of Pondcrete sample. Dissolve the Pondcrete in 400 ml of D.I. Water (1:4 ratio). Stir continuously for approximately 1 hour.
4. Vacuum filter each sample using filter paper and glass wool set-up.
5. Submit the filtrate for TS and S.G. analysis.
6. Repeat this experiment at 100°F.
7. Test to be performed for both Triwalls and Triwalls in metal containers.

TABLE 2-1

INSOLUBLE MATERIAL TABLE FOR TEST #2 - SECTION A

Sample	Weight Sample	Total D.I. Water Added	Pan #	TARE Weight Filter Media ⁽¹⁾ and Pan	Weight Media, Pan, and Sample Wet	Weight Media, Pan and Sample Dry	Weight Undissolved Sample	Lab I.D. P #	Lab I.D. P # for Solids ⁽²⁾	Percent Dissolved Solids (Liquid)	Specific Gravity Discrete Particles (Solid)
Triwalls											
PCTW - 2AA	100 g	50 ml	9	362.47g	474.23g	410.61g	48.14g	P214781	P214874	2.9%	2.71
PCTW - 2BA	100 g	1000 ml	17	350.52g	455.70g	398.34g	47.82g	P214782	P214873	1.5%	2.51
PCTW - 2CA	100 g	2000 ml	31	351.26g	457.86g	397.98g	46.72g	P214783	P214872	0.8%	2.56
Triwalls in Metal											
PCM - 2DA	100 g	500 ml	19	363.29g	496.70g	420.37g	57.08g	P214900	P214906	3.4%	2.75
PCM - 2EA	100 g	1000 ml	21	356.55g	484.15g	412.13g	55.58g	P214901	P214907	1.8%	2.67
PCM - 2FA	100 g	2000 ml	28	358.44g	482.29g	413.71g	55.27g	P214902	P214908	0.9%	2.60
Triwalls at 100°F											
PCTW - 2GA	100 g	500 ml	9	358.64g	469.60g	405.99g	47.35g	P412875	P214909	3.2%	2.68
PCTW - 2HA	100 g	1000 ml	17	348.11g	457.46g	395.29g	47.18g	P214876	P214910	1.6%	2.70
PCTW - 2IA	100 g	2000 ml	31	350.02g	459.32g	396.88g	46.86g	P214877	P214911	0.8%	2.66
Triwalls in Metal at 100°F											
PCM - 2JA	100 g	500 ml	9	357.80g	497.76g	414.60g	56.80g	P214961	P215272	3.7%	2.73
PCM - 2KA	100 g	2000 ml	17	345.05g	475.91g	401.08g	56.03g	P214962	P215273	1.9%	2.64
PCM - 2LA	100 g	2000 ml	19	361.08g	486.05g	416.64g	55.56g	P214963	P215274	0.9%	2.65

(1) Filter media includes glass wool pre-filter, filter paper, and steel pan for tests 1-3 and 7-9. Tests 2-3 and 10-12 media includes filter paper and pan, only no glass wool was used.

(2) An "S" was added to the sample label for submission to designate between filtrate and solids. For example, PCTW-2AA-S would be the solids portion.

TABLE 2-2

% SOLIDS OF PONDCRETE SAMPLES

Sample	Bottle Tare	Bottle and Sample Wet	Bottle and Sample Dry	% Solids
Triwalls (A)	112.86 g	120.00 g	117.32 g	62.5%
Triwalls (B)	114.30 g	128.70 g	123.20 g	61.8%
Metals (A)	112.60 g	127.00 g	122.80 g	70.8%
Metals (B)	113.90 g	131.10 g	126.30 g	72.1%

- (1) First run before room temperature experiment.
- (2) Duplicate run before 100°F experiment.

TABLE 2-3

SOLUBLE MATERIAL TABLE FOR TEST #2 - SECTION B

Sample Label	Water to Sample Ratio	Lab P #	Analytical Results		
			Specific Gravity	Total Dissolved Solids (mg/l)	Calculated % TDS
Triwalls					
PCTW - 2AB	1:1	P214786	1.071	110,000	10.3%
PCTW - 2BB	2:1	P214785	1.046	63,000	6.0%
PCTW - 2CB	4:1	P214784	1.024	34,000	3.3%
Triwalls in Metals					
PCM - 2DB	1:1	P214958	1.086	130,000	12.0%
PCM - 2EB	2:1	P214959	1.057	73,000	6.9%
PCM - 2FB	4:1	P214960	1.029	40,000	3.9%
Triwalls at 100°F					
PCTW - 2GB	1:1	P214897	1.077	110,000	10.2%
PCTW - 2HB	2:1	P214898	1.042	65,000	6.2%
PCTW - 2IB	4:1	P214899	1.026	37,000	3.6%
Triwalls in Metal Containers at 100°F					
PCM - 2JB	1:1	P214955	1.081	130,000	12.0%
PCM - 2KB	2:1	P214956	1.051	74,000	7.0%
PCM - 2LB	4:1	P214957	1.029	42,000	4.1%

LAB TEXT #6

SALTCRETE: SATURATION TDS VERSUS TEMPERATURE

PURPOSE:

To determine the saturation Total Dissolved Solids (TDS) concentration versus temperature.

PROCEDURE:

This experiment is performed for Saltcrete triwalls, Saltcrete half crates, and Saltcrete triwalls in metal containers. Analytical results are provided in Table 6-1.

Saltcrete Triwalls:

1. In three separate 600 ml beakers, place 200 ml of D.I. water. Weigh 100 grams of Saltcrete for each beaker and dissolve in the D.I. water.
2. Place one of the beakers in an ice bath to drop the temperature of the solution to approximately 50°F. Place another one of the beakers on a heating plate to raise the temperature to approximately 100°F. Leave one of the beakers at room temperature, approximately 70°F. Mix well for approximately one hour, to assure a saturated solution.
3. For all of the beakers allow any suspended solids to settle and then record the temperature of the supernatant. Using a vacuum pipette suction set-up, decant 100 ml of the supernatant and submit the sample for Total Solids (TS) and specific gravity (S.G.) analysis. Note the TS analysis is actually the total dissolved solids due to the decanting step performed.

Saltcrete Triwalls in Metal Containers:

1. In three separate 600 ml beakers, place 200 ml of D.I. water. Weigh 100 grams of Saltcrete for each beaker and dissolve in the D.I. water.
2. Place one of the beakers in an ice bath to drop the temperature of the solution to approximately 50°F. Place another one of the beakers on a heating plate to raise the temperature to approximately 100°F. Leave one of the beakers at room temperature, approximately 70°F. Mix well approximately one hour, to assure a saturated solution.
3. For all of the beakers, allow any suspended solids to settle and then record the temperature of the supernatant. Using a vacuum pipette suction set-up, decant 100 ml of the supernatant and submit the sample for TS and S.G. analysis.

Saltcrete in Half Crates:

1. In three separate 600 ml beakers, place 200 ml of D.I. water. Weigh 100 grams of Saltcrete for each beaker and dissolve in the D.I. water.
2. Place one of the beakers in an ice bath to drop the temperature of the solution to approximately 50°F. Place another one of the beakers on a heating plate to raise the temperature to approximately 100°F. Leave one of the beakers at room temperature, approximately 70°F. Mix well approximately one hour, to assure a saturated solution.
3. For all of the beakers, allow any suspended solids to settle and then record the temperature of the supernatant. Using a vacuum pipette suction set-up, decant 100 ml of the supernatant and submit the sample for TS and S.G. analysis.

TABLE 6-1

SATURATION TABLE FOR TEST #6

Sample I.D.	Supernatant Temperature (°F)	Date Submitted	Lab P#	Analytical Results		
				Total Dissolved Solids (mg/L)	Specific Gravity	Percent Total Dissolved Solids
Triwalls						
SCTW - 6A	44.2°F	10/20/92	P215212	270,000	1.062	25.4%
SCTW - 6B	68.0°F	10/21/92	P215275	250,000	1.062	23.5%
SCTW - 6C	103.2°F	10/21/92	P215278	280,000	1.092	25.6%
Triwalls in Metal						
SCM - 6D	46.7°F	10/20/92	P215213	230,000	1.052	21.9%
SCM - 6E	68.0°F	10/21/92	P215276	240,000	1.057	22.7%
SCM - 6F	99.0°F	10/21/92	P215279	300,000	1.097	27.3%
Half Crates						
SCHC - 6G	47.3°F	10/20/92	P215214	230,000	1.122	20.5%
SCHC - 6H	68.0°F	10/21/92	P215277	220,000	1.127	19.5%
SCHC - 6I	99.1°F	10/21/92	P215280	230,000	1.027	22.4%

NOTE: It was noted that the temperature of the settled solids for the heated portion of this experiment averaged 40 to 50°F higher than the recorded supernatant temperature.

LAB TEST #7

DISSOLUTION TEST OF SALTCRETE IN WATER

PURPOSE:

To determine the soluble and insoluble portions of the Saltcrete triwalls, Saltcrete half crates, and Saltcrete triwalls in metal containers, samples.

PROCEDURE:

A. INSOLUBLE MATERIAL

This test will determine the insoluble portion of the Saltcrete triwalls, Saltcrete half crates, and Saltcrete triwalls in metal containers. Analytical results are provided in Table 7-1.

1. Weigh out 310 g of the Saltcrete sample. Homogenize and place 10 grams in oven for percent solids measurement. Record in Table 7-2. Split remaining portion into three 100 gram samples. Record the weight of the sample.
2. In sufficiently large beakers, add 500, 1000, and 2000 ml of D.I. water to dissolve the Saltcrete samples. The samples should be stirred continuously for approximately one hour to assure complete dissolving.

NOTE: 100 ml of the total D.I. water should be add as a rinse during the filter Step #4.

3. Weigh a piece of filter paper and a metal holding pan. Record the weights.
4. Filter the solution using a vacuum filter set-up.
5. Submit the filtrate for Total Solids (TS) and specific gravity (S.G) analysis. Note the TS results is actually the total dissolved (TDS) result due to the filter step.
6. Place the filter paper containing the undissolved solids in the holding pan and dry in a 103°F oven over night. Weigh and record.
7. After determining the weight of the insoluble portion, submit the dry solids for S.G. analysis of the discrete particles.
8. Repeat this experiment at 100°F.
9. Test to be performed for triwalls, triwalls in metal containers, and half crates.

B. SOLUBLE MATERIAL

This test will determine the soluble portion of the Saltcrete samples. Analytical results are provided in Table 7-3.

1. Weigh out 200g of the Saltcrete sample and dissolve in beaker with 200 ml of D.I. water (1:1 ratio). Mix for approximately 1 hour to assure complete dissolving.
2. Weigh out 100g of Saltcrete sample and dissolve in a beaker with 200 ml of D.I. water (1:2 ratio). Mix for approximately 1 hour.
3. Weigh out 100g of Saltcrete sample and dissolve in a beaker with 400 ml of D.I. water (1:4 ratio). Mix for approximately 1 hour.
4. Vacuum filter using filter paper and glass wool set-up.
5. Submit the filtrate for TS and S.G. analysis.
6. Repeat this experiment at 100°F.
7. Test to be performed for triwalls, triwalls in metal containers, and half crates.

TABLE 7-1
 INSOLUBLE MATERIAL TABLE FOR TEST #7 - SECTION A
 PAGE TWO

Sample	Weight Sample	D.I. Water Added	Pan #	(TARE) Weight Filter Media and Pan	Weight Media, Sample, and Pan Wet	Weight Media, Sample, and Pan Dry	Weight Undissolved Sample	Lab P # for Filtrate	Lab P # for Solids ⁽¹⁾	Percent Total Dissolved Solids	Specific Gravity of Solids
Half Crates at 100°F											
SCHC - 7PA	100 g	500 ml	1	357.17 g	448.88 g	398.40g	50.50g	P215285	P0217703	9.3%	2.70
SCHC - 7QA	100 g	1000 ml	7	355.65 g	442.26 g	396.80g	45.50g	P215286	P0217704	4.5%	2.71
SCHS - 7RA	100 g	2000 ml	14	360.13 g	440.98 g	400.10g	40.90g	P215284	P0217705	2.3%	2.47

(1) Add an "S" to end of the sample table to designate a solid sample submission. For example: SCHC7PA-S.

TABLE 7-2

PERCENT SOLIDS OF SALTCRETE SAMPLE

Sample	(TARE) Weight Glass Jar	Weight Sample and Glass Jar Wet	Weight Sample and Glass Jar Dry	Percent Solids
SCTW ⁽¹⁾	112.8	129.5	126.4	81.4%
SCTW ⁽²⁾				
SCMC ⁽¹⁾	114.6	126.2	123.9	80.2%
SCM ⁽²⁾				
SCHC ⁽¹⁾	114.5	129.4	127.0	83.9%
SCHC ⁽²⁾				

(1) First run before room temperature experiment.

(2) Duplicate run before 100°F experiment.

TABLE 7-3

SOLUBLE MATERIAL TABLE FOR TEST #7 - SECTION B

Sample Label	D.I. Water to Saltcrete Ratio	Lab P #	Analysis Results		
			Specific Gravity	Total Dissolved Solids	Calculated % Dissolved Solids
Triwalls					
SCTW - 7AB	1:1				
SCTW - 7BB	2:1				
SCTW - 7CB	4:2				
Triwalls in Metals					
SCM - 7DB	1:1				
SCM - 7EB	2:1				
SCM - 7FB	4:1				
Half Crates					
SCHC - 7GB	1:1				
SCHC - 7HB	2:1				
SCHC - 7IB	4:1				
Triwalls at 100°F					
SCTW - 7JB	1:1				
SCTW - 7KB	2:1				
SCTW - 7LB	4:1				
Triwalls in Metal Containers at 100°F					
SCM - 7MB	1:1				
SCM - 7NB	2:1				
SCM - 7OB	4:1				
Half Crates at 100°F					
SCHC - 7PB	1:1				
SCHC - 7QB	2:1				
SCHC - 7RB	4:1				