DOCUMENT #2145707

FORM 4
Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax (303)894-2109

DE | ET | OE | ES

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

CE & P Fac ID = 149015

1. OGCC Operator Number: 96850
2. Name of Operator: WPX Energy Rocky Mountain LLC
3. Address: 1058 County Road 215
City: Parachute State: CO Zip: 81635
4. Contact Name: Karolina Blaney
Phone: 970 683 2295
Fax: 970 285 9573

Complete the Attachment Checklist

	OP	OGCC
Survey Plat		
Directional Survey		
Surface Eqpmt Diagram		
Technical Info Page	X	
Other	X	

5. API Number 05- NA
OGCC Facility ID Number 426954
6. Well/Facility Name:
7. Well/Facility Number Grand Valley Pit #1
8. Location (QtrQtr, Sec, Twp, Rng, Meridian): NWNW S1 T7S R96W 6 6TH P.M
9. County: Garfield
10. Field Name: Grand Valley
11. Federal, Indian or State Lease Number:

General Notice

☐ CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)

	FNL/FSL		FEL/FWL	
Change of **Surface** Footage **from** Exterior Section Lines:				
Change of **Surface** Footage **to** Exterior Section Lines:				
Change of **Bottomhole** Footage **from** Exterior Section Lines:				
Change of **Bottomhole** Footage **to** Exterior Section Lines:				attach directional survey

Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer
Latitude 39.471484 Distance to nearest property line Distance to nearest bldg, public rd, utility or RR
Longitude -108.066205 Distance to nearest lease line Is location in a High Density Area (rule 603b)? Yes/No
Ground Elevation Distance to nearest well same formation Surface owner consultation date:

GPS DATA:
Date of Measurement PDOP Reading Instrument Operator's Name

☐ CHANGE SPACING UNIT

Formation	Formation Code	Spacing order number	Unit Acreage	Unit configuration

☐ Remove from surface bond
Signed surface use agreement attached

☐ CHANGE OF OPERATOR (prior to drilling):
Effective Date:
Plugging Bond: ☐ Blanket ☐ Individual

☐ CHANGE WELL NAME NUMBER
From:
To:
Effective Date:

☐ ABANDONED LOCATION:
Was location ever built? ☐ Yes ☐ No
Is site ready for Inspection? ☐ Yes ☐ No
Date Ready for Inspection:

☐ NOTICE OF CONTINUED SHUT IN STATUS
Date well shut in or temporarily abandoned:
Has Production Equipment been removed from site? ☐ Yes ☐ No
MIT required if shut in longer than two years. Date of last MIT

☐ SPUD DATE:

☐ REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set)

☐ SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK *submit cbl and cement job summaries

Method used	Cementing tool setting/perf depth	Cement volume	Cement top	Cement bottom	Date

☐ RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.
Final reclamation will commence on approximately ☐ Final reclamation is completed and site is ready for inspection.

Technical Engineering/Environmental Notice

☐ Notice of Intent
Approximate Start Date:

☐ Report of Work Done
Date Work Completed:

Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)

☐ Intent to Recomplete (submit form 2)	☐ Request to Vent or Flare	☐ E&P Waste Disposal
☐ Change Drilling Plans	☐ Repair Well	☐ Beneficial Reuse of E&P Waste
☐ Gross Interval Changed?	☐ Rule 502 variance requested	☐ Status Update/Change of Remediation Plans for Spills and Releases
☐ Casing/Cementing Program Change	☒ Other: Form 15 COAs	

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Karolina Blaney Date: 2/29/2012 Email: Karolina.Blaney@Williams.com
Print Name: Karolina Blaney Title: Environmental Specialist

COGCC Approved: Title: Env. Sup. Date: 7/26/13
CONDITIONS OF APPROVAL, IF ANY:

None

Click here to reset form

FORM 4 Rev 12/05

TECHNICAL INFORMATION PAGE

FOR OGCC USE ONLY

1. OGCC Operator Number: 96850 API Number:
2. Name of Operator: WPX Energy Rocky Mountain LLC OGCC Facility ID # 426954
3. Well/Facility Name: Well/Facility Number: GV Pit #1
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NWNW S1 T7S R96W 6 6TH P.M

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. **DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

In accordance with the Grand Valley # 1 pit permit Form 15 conditions of approval (see attached), WPX is submitting the following documents in order to stay in compliance:

Attachment A - Copy of the approved Form 15
Attachment B - Professional Engineer stamped review of the as-built construction and integrity of the pit, As-built construction details, and Engineering evaluation of the liner installation and Sub Grade Acceptance
Attachment C - Historical use and maintenance and schedule for the pit
Attachment D - Operation and Maintenance Plan which includes the daily inflow rate, description of how total fluids management is monitored to evaluate for potential loss through the liner, and the leak detection system.
Attachment E - Hydrostatic tests results
Attachment F - Hydrologic Evaluation
Attachment G - Geologic Evaluation

Attachment A

Approved Form 15

FORM 15 Rev 6/99

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

01849096

FOR OGCC USE ONLY
RECEIVED
NOV 15 2010
COGCC

EARTHEN PIT REPORT/PERMIT

This form is to be used for both reporting and permitting pits. Rule 903 describes when a Permit with prior approval, or a Report within 30 days, is required for pits. Submit required attachments and forms.

FORM SUBMITTED FOR: BW [X] Pit Report [X] Pit Permit

Complete the Attachment Checklist

	Oper	OGCC
Detailed Site Plan	X	
Topo Map w/ Pit Location	X	
Water Analysis (Form 25)		
Source Wells (Form 26)		
Pit Design/Plan & Cross Sec	X	
Design Calculations	X	
Sensitive Area Determ.	X	
Mud Program		
Form 2A		

OGCC Operator Number: 96850
Name of Operator: Williams Production RMT
Address: 1058 County Rd 215
City: Parachute State: CO Zip: 81635

Contact Name and Telephone:
Karolina Blaney
No: 970 683-2295
Fax: (970) 285-9573

API Number (of associated well): NA T75 OGCC Facility ID (of other associated facility): 149015 = Fac. ID
Pit Location (Qtr Qtr, Sec, Twp, Rng, Meridian): ~~S 1&2, T12, R96W, 6TH P~~ M. Sec 1&2, T7S R96W, 6TH PM, NWNW - Sec. 1
Latitude: ~~39°28'47.36"N~~ 39.471484 Longitude: ~~108°03'58.67"W~~ -108.066295 County: GARFIELD

Pit Use: [X] Production [ ] Drilling (Attach mud program) [ ] Special Purpose (Describe Use):
Pit Type: [X] Lined [ ] Unlined Surface Discharge Permit: [ ] Yes [X] No
Offsite disposal of pit contents: [X] Injection [ ] Commercial Pit/Facility Name: GRAND VALLEY PIT 1 Pit/Facility No: #1
Attach Form 26 to identify Source Wells and Form 25 to provide Produced Water Analysis results.

Existing Site Conditions

Is the location in a "Sensitive Area?" [ ] Yes [X] No **Attach data used for determination.**
Distance (in feet) to nearest surface water: 1969 ground water: 15 295 water wells: 2554

LAND USE (or attach copy of Form 2A if previously submitted for associated well) Select one which best describes land use:
Crop Land: [ ] Irrigated [ ] Dry Land [ ] Improved Pasture [ ] Hay Meadow [ ] CRP
Non-Crop Land: [X] Rangeland [ ] Timber [ ] Recreational [ ] Other (describe):
Subdivided: [ ] Industrial [ ] Commercial [ ] Residential

SOILS (or attach copy of Form 2A if previously submitted for associated well)
Soil map units form USNRCS survey: Sheet No: NA Soil Complex/Series No: 57
Soils Series Name: 57-POTTS-LIDEFONSO COMPLEX Horizon thickness (in inches): A: 0-4 ; B: 4-28 ; C: 28-60
Soils Series Name: 35-LIDEFONSO-LAZEAR COMPLEX Horizon thickness (in inches): A: 0-8 ; B: 8-60 ; C:
Attach detailed site plan and topo map with pit location.

Pit Design and Construction

Size of pit (feet): Length: 384.5 Width: 274.8 Depth: 15
Calculated pit volume (bbls): 218,455 Daily inflow rate (bbls/day): VARIABLE
Daily disposal rates (attach calculations): Evaporation: NA bbls/day Percolation: NA bbls/day
Type of liner material: SYNTHETIC POLYPRORYLENE ethylene ASP Thickness: 60 MIL
Attach description of proposed design and construction (include sketches and calculations).
Method of treatment of produced water prior to discharge into pit (separator, heater treater, other): NA
Is pit fenced? [X] Yes [ ] No Is pit netted? [X] Yes [ ] No

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.
Print Name: Karolina Blaney Signed: Karolina Blaney
Title: Environmental Specialist Date: 11/8/2010

OGCC Approved: Alex Fischer Title: Env. Sup. Date: 1/4/2012
CONDITIONS OF APPROVAL, IF ANY:

FACILITY NUMBER: 426954

See Attached Conditions of Approval

Conditions of Approval – January 4, 2012

Grand Valley Pit # 1; Facility ID: 426954

Pit is constructed in fill. Provide a Professional Engineer (P.E.) stamped review of the as-built construction of the pit and integrity of the pit.

Provide the as-built construction details.

The date provided on the "Sub Grade Acceptance" is the same for the Grand Valley Pit 1, Grand Valley Pit 2, and Grand Valley Pit 3. It appears that the "Sub Grade Acceptance" is applicable for Grand Valley 3. Provide an engineering evaluation (by a P.E.) of the liner installation and "Sub Grade Acceptance."

Provide documentation detailing the historical use and maintenance of the pit, including a timeline of significant maintenance events conducted.

Provide the anticipated time frame which the pit will be in service.

Provide an operation and maintenance (O & M) plan and schedule for the pit.

Provide the daily inflow rate and description of how total fluids management is monitored to evaluate for potential loss through the liner system.

Conduct a 72-hour (minimum) hydrostatic integrity test of the liner system and submit a P.E. review and evaluation of the results of the test.

Leak detection is required for this pit (Rule 904.e.). Provide design and implementation details for leak detection system.

Provide the geologic/hydrogeologic evaluation of the facility which was provided to Garfield County.

Submit Requested information above by March 1, 2012.

Attachment B

Professional Engineer stamped review of the as-built construction and integrity of the pit

As-built construction details

Engineering evaluation of the liner installation and Sub Grade Acceptance

February 28, 2012

WPX Energy Rocky Mountain, LLC
1058 County Road 215
Parachute, CO 81635

Attention: **Ms. Karolina Blaney**
Email: Karolina.Blaney@williams.com
Wk: 970-683-2295

Subject: **Engineering Consultation- Existing Pits**
Grand Valley Pit #1, #2 and #3
Garfield County, Colorado
Terracon Job No. AD125007

Ms. Blaney,

As requested, the Terracon Engineer visited the subject site and made measurements and observations on February 17 and 23, 2012 and reviewed construction reports of the subject ponds/liners in preparation of this report. The purpose of our review was to determine the conditions of the liner compliance with the attached COGCC Form 15 approval as follows for each pit:

1. P.E. stamped review of the as-built construction of the pit and integrity of the pit considering existing fill, and
2. Evaluation of the liner installation and "Sub Grade Acceptance".

Site Conditions

At the time of our visits, the subject pits were existing and operational. GV Pit #1 exterior included a synthetic liner cover. GV Pits #2 and #3 had wildlife netting cover. The area surrounding the subject site can be characterized as largely vacant, semi arid and barren. We found no seeps or other non man made water sources in the immediate vicinity. The subject site is located in a sloping valley floor that drops down toward the south and west. Therefore the resulting locations of maximum fill are on the southwest ends of the pits. We visually found up to 15 feet of fill at pit#1, about 10 feet of fill at pit#2 and up to 12 feet fill thickness at pit#3.

The pits were each found as described in the documents we reviewed. The pits and associated liners were found to be free of apparent damages. We observed the existing liner surface appeared to be in good condition. We did not identify punctures, tears or stress in the three pit liners.

Review of construction documents indicates compaction testing was performed during construction of the liner subgrade level in each of the pits. Three locations at pit#1, 3 locations at pit#2 and two locations at pit#3 liner subgrade were tested and met generally accepted construction practice at the level and time tested (reference attached Lambert and Associates test reports dated May 28, 2009).

Site embankment fills such as in the southwest end of the pits and the dividing areas between pits were not tested. Construction documents (reference Uintah Engineering and Land Surveying, AS-BUILT drawings dated October 28, 2010 for each pit, attached) show existing embankment fill depths varying up to 5 to 10 feet at each of the pits. In our opinion, the amount of time since construction of 2 ½ years with no apparent damages and the level of 24 hour operational monitoring at this site indicate it is very unlikely that any one time event could damage the existing fill to cause a release. However, we do not recommend construction on the embankments unless foundation engineering considers the existence of man made fill. We also believe that a reoccurring yearly reobservation is warranted. We recommend the observations be performed by a Colorado registered P.E. to check for evidence of ongoing fill consolidation or liner tension, considering the lack of construction documentation of fills at the subject site.

The Terracon engineer walked the entire perimeter of each pit#2, and pit#3 and inspected the liner from the anchor trench to the water level. The liners were found to be in excellent condition with no signs of deterioration, tears, or punctures. No protruding or bulging areas were observed on the surface of the liner. All seams were reported to be factory seamed; appeared to be professionally welded and there were no signs of separation or de-lamination. The liner appeared to be properly installed in the anchor trench and backfilled correctly. Normal slack in the liner material was observed. Pit#1 had a synthetic cover and therefore the liner was not accessible. However the above comments are also applicable of our observations of the pit#1 cover.

We reviewed the “Sub Grade Acceptance” forms included in the attached file and talked to the MB Construction representative, Richard Teninty who signed the form at time of completion of construction. We understand the ‘acceptance’ was based on an observation the soil liner grade did not have sharp protruding points or obvious holes immediately prior to liner lay down. It does not apply to potential underlying support issues.

Review of liner Daily Installation Reports by ClearWater Construction dated Pit#1 (5-29 thru 31, 2009), Pit#2 (6-2,4,5,6,7, 8, 9, and 10, 2009) and Pit#3 (6-12,13, 14 and 15, 2009) indicates the installation including field welds and field tests met our understanding of liner specifications and generally accepted construction practices.

Compliance with Form 15 Approval Conditions

Based on our observations, measurements and review, the subject liners appear to have been installed per the manufacturer's installation recommendations and performing satisfactorily for the last 2 ½ years since construction. We believe the Grand Valley pits#1, 2, and 3 are constructed in accordance with industry standards. Therefore, regarding

1. P.E. stamped review of the as-built construction of the pit and integrity of the pit considering existing fill

The information and limitations contained in this report serves as our review of the as-built construction. Considering existing fill, we believe a reoccurring yearly reobservation made by a Colorado licensed P.E., as described above to check for evidence of fill consolidation, is warranted. The next item,

2. Evaluation of the liner installation and "Sub Grade Acceptance".

As noted above, the attached "Sub Grade Acceptance" forms for each subject pit apply to the observation made immediately prior to lay down of the synthetic liner. We do not believe additional work is warranted at this time in regards to these observations.

We believe this investigation was conducted in a manner consistent with that level of care and skill ordinarily used by geotechnical engineers practicing in this area at this time. No other warranty, either express or implied, is made.

Sincerely,
Terracon Consultants, Inc.

John P. Withers, P.E.
Principal Engineer

1copy sent
Jpw:jpw

1copy emailed
1cc emailed david.fox@williams.com

Attachment:

Documents Reviewed in Preparation of Engineering Consultation
Grand Valley Pit #1
Grand Valley Pit #2
Grand Valley Pit #3

Grand Valley Pit #1 Data

Legend

- Pit
- Road

Williams Production RMT

Pit Location Map

March 18, 2009

O:\Projects\PIC_MultiProspect\09\0223_ProposedPit\Pit_Topo.mxd klee 3/18/2009 10:16:17 AM

WILLIAMS PRODUCTION RMT
PARACHUTE WATER HANDLING FACILITY
POND #1 (AS-BUILT DRAWING)
LOCATED IN THE NW 1/4 NW 1/4 OF SECTION 1, T7S, R96W, 6th P.M.

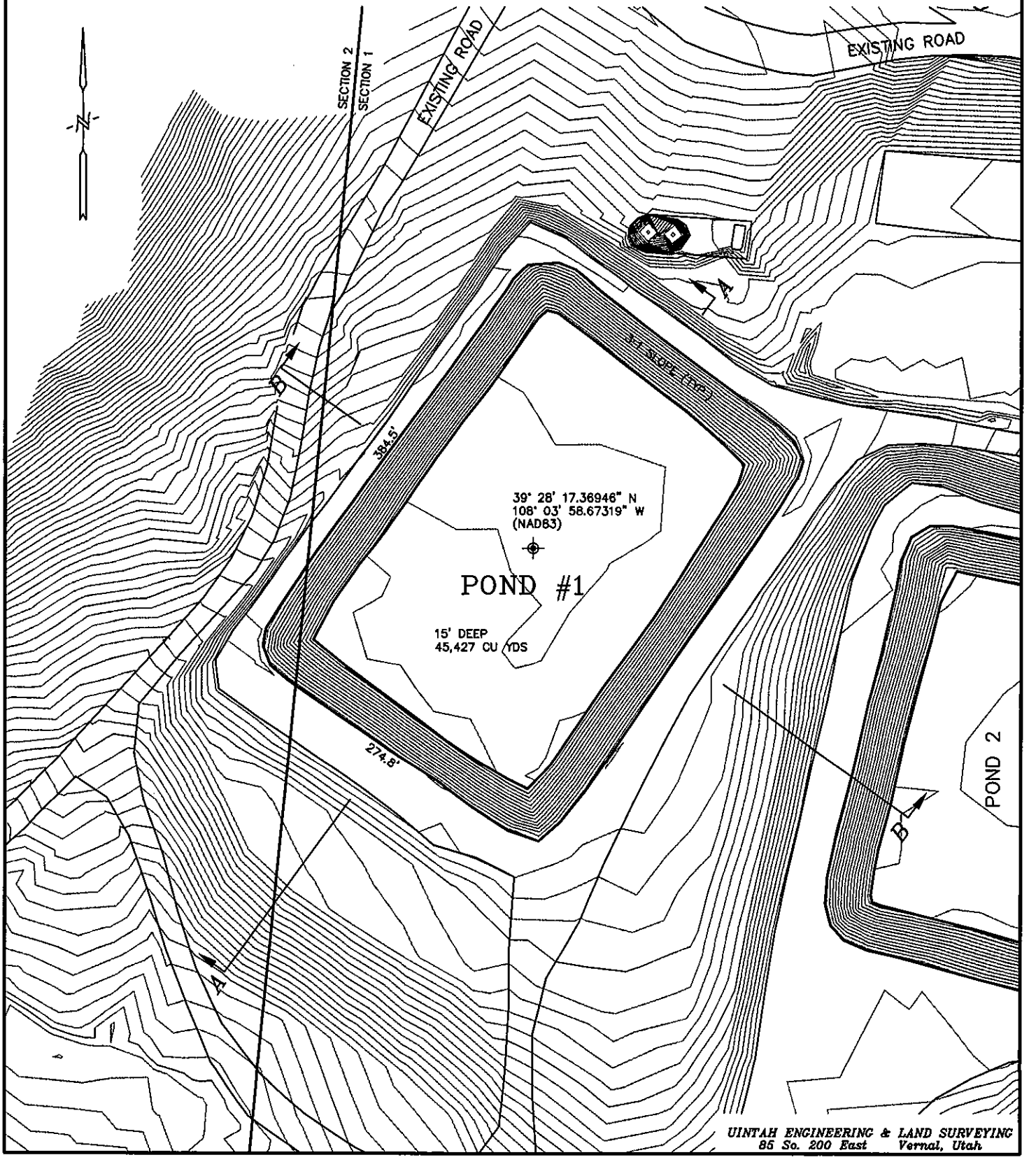
SHEET 1 OF 2

100' 50' 0'

SCALE: HORIZONTAL & VERTICAL

DATE: 10-28-10

Drawn By: D.G.W.



UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah

WILLIAMS PRODUCTION RMT

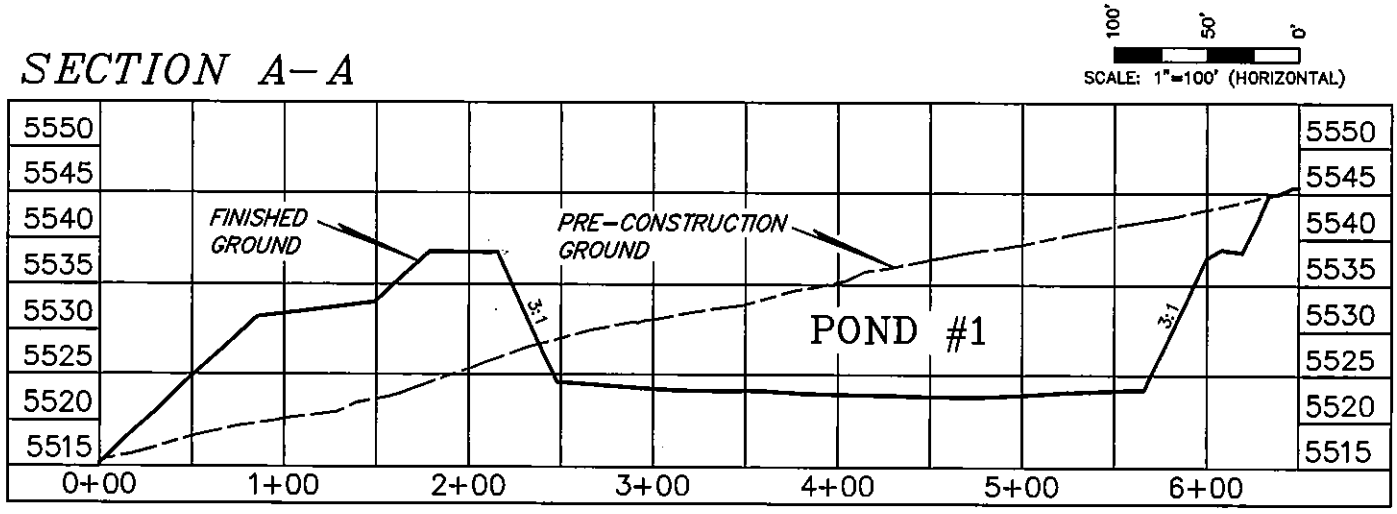
PARACHUTE WATER HANDLING FACILITY

POND #1 (AS-BUILT DRAWING)

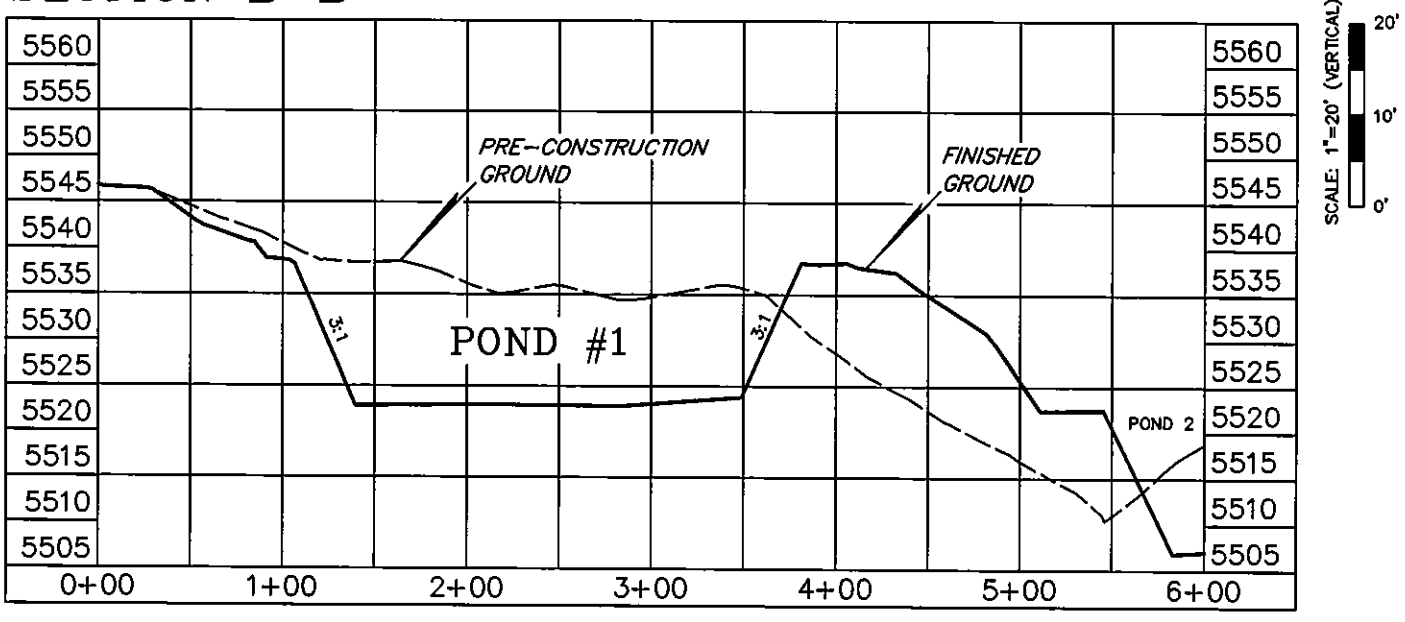
LOCATED IN THE NW 1/4 NW 1/4 OF
SECTION 1, T7S, R96W, 6th P.M.

DATE: 10-28-10
Drawn By: D.G.W.

SECTION A-A

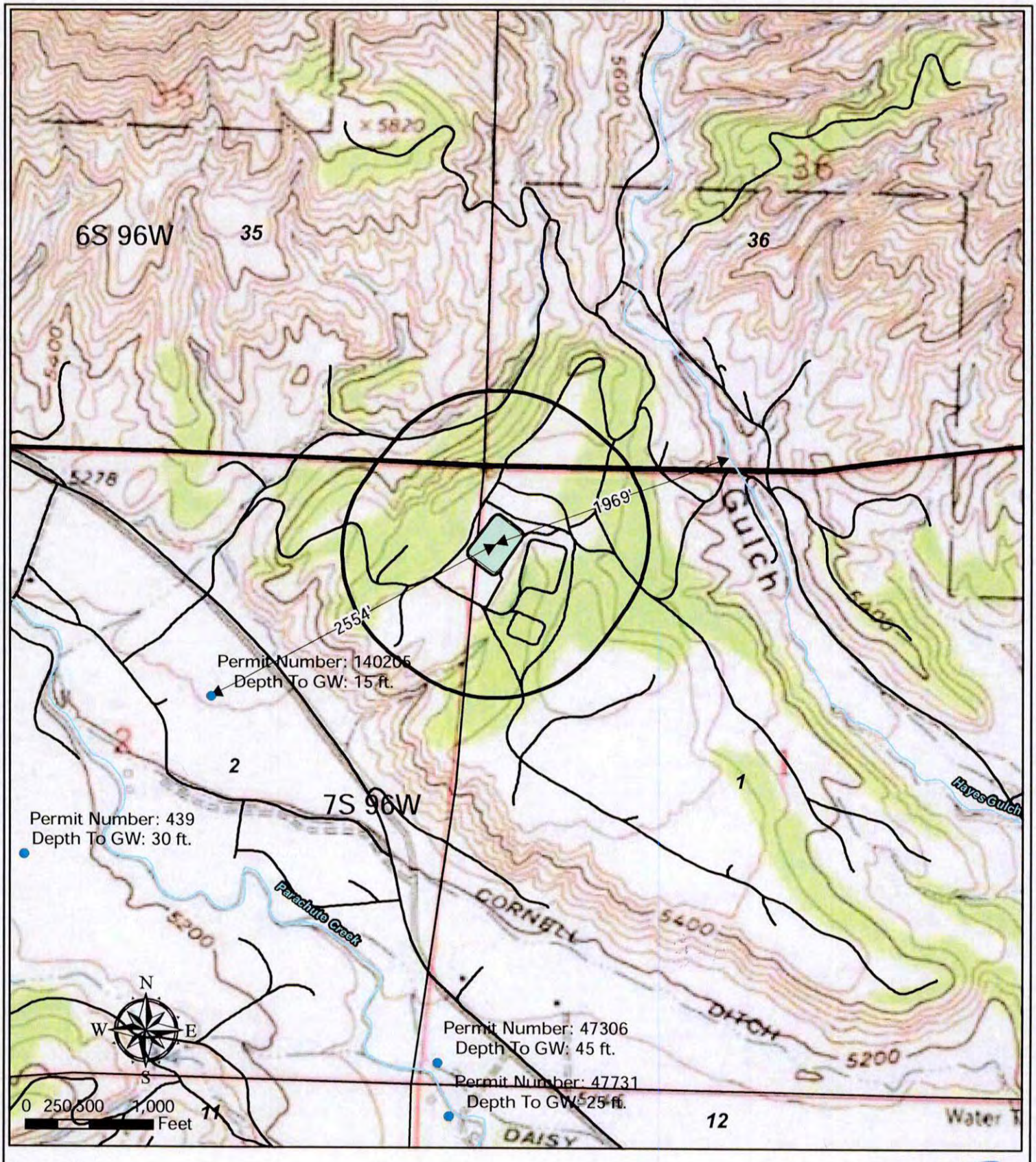


SECTION B-B



POND #1:
CAPACITY (FULL):
218,455 BBLS (45,427 CUBIC YARDS)
CAPACITY (WITH 2' FREEBOARD):
182,561 BBLS (37,963 CUBIC YARDS))

UINTAH ENGINEERING & LAND SURVEYING
85 So. 200 East Vernal, Utah



Legend

- Water Well
- Stream
- Distance Vector
- Existing Road
- 1000' Buffer
- Produced Water Pond

Williams

Williams Production RMT

Produced Water Pond Hydrology Map
T7S R96W, Section 1

~90'

T:\Projects\PIC\GrandValley\10\1027_ParachuteProducedWaterPondHydrology\Hydrology_Pond1.mxd dcollett 10/27/2010 8:42:14 AM

Sensitive Area Determination Checklist

Williams Production RMT Company			
Person(s) conducting inspection		Mark E. Mumby	11/8/2010
Site Information			
Location:	Grand Valley Pond 1		Time:
Type of Facility:	Produced Water Storage Pond		
Environmental Conditions			
Temperature (°F)			

Has the proposed, new or existing location been designated as a sensitive area?
☐ Yes ☒ No

SURFACE WATER

1. Are there any surface water features or SWSAs adjacent to or within ¼ mile of the proposed/new or existing facility?
   ☒ Yes ☐ No

   If yes, list type of surface water feature(s), i.e. rivers, creeks, streams, seeps, springs, wetlands: Two unnamed ephemeral drainages

   If yes, describe location relative to facility: One of the unnamed ephemeral drainages is located 1,031 feet northwest of the existing facility. The second unnamed ephemeral drainage is located ~763 feet south southeast of the existing facility

2. Could a potential release from the facility reach surface water features?
   ☐ Yes ☒ No

   If yes, describe the pathway a release from the facility would likely follow to determine if the potential to impact surface water is high or low.

3. Is the potential to impact surface water from a facility release high or low?
   ☐ High ☒ Low

GROUNDWATER

1. Will the proposed/new or existing facility have any pits which will contain hydrocarbons and chlorides or other E&P wastes?
   ☒ Yes ☐ No
   If yes, List the pit type(s): Produced Water Storage Pond

2. Is the site of the proposed facility underlain by an unconfined aquifer or recharge zone?
   ☐ Yes ☒ No

3. Is the hydraulic conductivity of the underlying soil or geologic material $\leq 1.0x10^{-7}$ cm/sec?
   ☐ Yes ☒ No

4. Is the proposed facility located within 1/8 mile of a domestic water well or 1/4 mile of a public water supply well which would use the same aquifer?
   ☐ Yes ☒ No

5. Is the proposed facility located within a 100 year floodplain?
   ☐ Yes (*Sensitive Area*) ☒ No (*If no, proceed to question #6.*)

6. Is the depth to groundwater known?
   ☐ Yes (*If yes, follow instructions provided in 5(a) of this section).*
   ☒ No (*If no, follow instructions provided in 5(b) of this section*).

   (a) If yes, could a potential release from the proposed facility reach groundwater?
   ☐ Yes ☐ No
   If yes, explain:

   (b) If no:
   (i) Evaluate surrounding soils, topography, and vegetation which may suggest the presence of shallow groundwater.
   (ii) Gather information from surrounding well data in order to determine a depth to groundwater, i.e. State Engineers Office.
   (iii) Drill a soil boring to determine depth to groundwater or
   (iv) Model hydro geologic conditions to determine if the potential to impact groundwater is high or low.

7. Is the potential to impact ground water from the facility in the event of a release high or low?
   ☐ High ☒ Low

Additional Comments:
There are two surface water features that were indentified during a previous site visit and desk top review. The surface water features were identified as unnamed ephemeral drainages. The ephemeral drainage located to the northwest of the existing facility is separated from the facility by a ridgeline which would eliminate the potential for a release to impact this drainage feature. The second ephemeral drainage is shown on the older topographical maps to be within 500 feet of the existing facility. By COGCC decision this would place the facility within a sensitive area. However, with the construction of the three produced water ponds; the ground surface has been recontoured and the drainage as it is shown on the topographical map no longer exists. The distance to the remnants of the drainage to the south southeast of the facility is now approximately 763 feet away. A potential release if it were to migrate out of the pond would tend to migrate to the flat lying areas adjacent to the pond. Therefore the potential for a release to reach the remnants of the ephemeral drainage to the south of the facility would be practically non-existent.

Groundwater data from the state engineer's office indicates that there are no permitted water wells within ¼ mile of the existing facility. The closest permitted water well is 2,554 feet to the southwest of the facility. Based on observations during a previous site visit, field data collected from recent site investigation activities, and pit construction, it appears that the depth to groundwater, if present, in the immediate vicinity of the facility is at a depth greater than 50 feet. The pond is also lined further reducing any potential to impact groundwater.

Based on the information collected during the previous site investigation and desktop review, the potential to impact surface water features has been deemed to be low to practically non-existent high. Based on the topographical setting of the proposed facility the potential to impact ground water has been deemed low as well. Therefore the proposed facility should be designated as being in a non-sensitive area.

Inspector Signature(s): _____ Date: 11/8/2010

LINER SPECIFICATIONS

High Density Polyethylene Smooth Liner™

Product Data

Property	Test Method	Values				
Thickness (min. ave.), mil (mm)	ASTM D5199*	30 (.75)	40 (1.0)	60 (1.5)	80 (2.0)	100 (2.5)
Thickness (lowest indiv.), mil (mm)	ASTM D5199*	27 (.68)	36 (.90)	54 (1.35)	72 (1.80)	90 (2.25)
*The thickness values may be changed due to project specifications (i.e., absolute minimum thickness)						
Density, g/cc, minimum	ASTM D792, Method B	0.94	0.94	0.94	0.94	0.94
Tensile Properties (ave. both directions)	ASTM D6693, Type IV					
Strength @ Yield (min. ave.), lb/in width (N/mm)	2 in/minute	66 (11.6)	88 (15.4)	132 (23.1)	176 (30.8)	220 (38.5)
Elongation @ Yield (min. ave.), % (GL=1.3in)	5 specimens in each direction	13	13	13	13	13
Strength @ Break (min. ave.), lb/in width (N/mm)		120 (21)	160 (28)	240 (42)	320 (56)	400 (70)
Elongation @ Break (min. ave.), % (GL=2.0in)		700	700	700	700	700
Tear Resistance (min. ave.), lbs. (N)	ASTM D1004	23 (102)	30 (133)	45 (200)	60 (267)	72 (320)
Puncture Resistance (min. ave.), lbs. (N)	ASTM D4833	60 (267)	80 (356)	120 (534)	160 (712)	190 (845)
Carbon Black Content (range in %)	ASTM D4218	2 - 3	2 - 3	2 - 3	2 - 3	2 - 3
Carbon Black Dispersion (Category)	ASTM D5596	Only near spherical agglomerates for 10 views: 9 views in Cat. 1 or 2, and 1 view in Cat. 3				
Stress Crack Resistance (Single Point NCTL), hours	ASTM D5397, Appendix	300	300	300	300	300
Oxidative Induction Time, minutes	ASTM D3895, 200°C, 1 atm O_2	≥100	≥100	≥100	≥100	≥100
Melt Flow Index, g/10 minutes	ASTM D1238, 190°C, 2.16kg	≤1.0	≤1.0	≤1.0	≤1.0	≤1.0
Oven Aging	ASTM D5721	80	80	80	80	80
with HP OIT, (% retained after 90 days)	ASTM D5885, 150°C, 500psi O_2					
UV Resistance	GRI GM11	20hr. Cycle @ 75°C/4 hr. dark condensation @ 60°C				
with HP OIT, (% retained after 1600 hours)	ASTM D5885, 150°C, 500psi O_2	50	50	50	50	50

These product specifications meet or exceed GRI's GM13

Supply Information (Standard Roll Dimensions)

Thickness		Width		Length		Area (approx.)		Weight (average)	
mil	mm	ft	m	ft	m	ft^2	m^2	lbs	kg
30	.75	23	7	803.8	245	18,461	1,715	3,050	1,383
40	1.0	23	7	649.6	198	14,919	1,386	3,075	1,395
60	1.5	23	7	419.9	128	9,645	896	3,006	1,364
80	2.0	23	7	321.5	98	7,384	686	3,067	1,391
100	2.5	23	7	249.3	76	5,727	532	3,006	1,364

Notes:

All rolls are supplied with two slings. All rolls are wound on a 6 inch core. Special roll lengths are available on request.
All roll lengths and widths have a tolerance of ±1%

500 Garrison Road, Georgetown, South Carolina 29440 843-546-0600 800-373-2478 Fax: 843-527-2738
email: salesmkg@agruamerica.com www.agruamerica.com

LINER TEST

CLI - CLEARWATER
CONSTRUCTION

Installation Reports

for

Hayes Evap Pit

CLI - CLEARWATER CONSTRUCTION

Daily Installation Report

Date: 5/29/09
Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Installation Supervisor: ROGER BARNES
Material: 60 MIL HDT, 8OZ TEXTILE

Fusion Weld X **Extrusion Weld** ____

DAILY SEAM STRENGTH TEST

Date of Test	Time of Test	Ambient Air Temp.	Unit Temp.	Pre-Heat Temp.	Unit Speed	Peel Value Inside/Outside	Sheer Value	Welding Tech.	Unit No.	Pass/ Fail
5/29/09	10:30	70	800		6.5	134/133	198	JH	1548	P
						134/132	200			
						129/125				
						/				
5/29/09	10:45	70	800		7.0	132/142	189	RG	0033	P
						125/132	201			
						123/126				
						/				
						/				
						/				
						/				
						/				

DAILY RECAP

Quantity Installed	Weather	Contract Labor Hours	Equipment Maintenance / Greasing
	80&SUNNY	0	T-300

Comments: ONSITE AT 7:00AM LAID TEXTILE UNTIL 10:30. STARTED LINER, LAID LINER TILL 4:30 BECAUSE IT STARTED TO RAIN AND THE WIND WAS BLOWING HARD. SANDBAGGED TOE, SOUTH TIE IN AND LAST PANEL. PICKED UP TRASH. I HAVE 2 HRS OF LAYOUT LEFT AND THE POND WILL BE BLACKED OUT.

CLI - CLEARWATER CONSTRUCTION

Daily Installation Report

Date: 5/30/09
Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Installation Supervisor: ROGER BARNES
Material: 60 MIL HDT, 8OZ TEXTILE

Fusion Weld X **Extrusion Weld** X

DAILY SEAM STRENGTH TEST

Date of Test	Time of Test	Ambient Air Temp.	Unit Temp.	Pre-Heat Temp.	Unit Speed	Peel Value Inside/Outside	Sheer Value	Welding Tech.	Unit No.	Pass/ Fail
5/30/09	7:00	57	800		6.4	133/138	187	JH	1548	P
						134/130	187			
						129/123				
5/30/09	7:00	57	800		7.0	132/141	162	RG	0033	P
						133/129	161			
						130/131				
5/30/09	8:40	63	800		7.0	121/129	155	RG	0033	P
						116/115	155			
						123/122				
5/30/09	10:20	75	500	475		128/	142	SS	1549	P
						124/	135			
						132/				

DAILY RECAP

Quantity Installed	Weather	Contract Labor Hours	Equipment Maintenance / Greasing
	80&SUNNY&	0	T-300

Comments: PULLED IN NORTH WALL BY 9:30. SANDBAGGED TIE IN. RAN SOUTH TIE IN-AIRTESTED, REPAIRED, & V-BOXED. STAGED ROLLS FOR POND# 2. PICKED UP TRASH. SHOULD BE DONE WITH POND #1 BY SUNDAY AM. WE'RE GOING TO PULL IN TEXTILE IN POND #2 FOR THE REST OF SUNDAY.

CLI - CLEARWATER CONSTRUCTION

Daily Installation Report

Date: 5/31/09
Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Installation Supervisor: ROGER BARNES
Material: 60 MIL HDT, 8 OZ TEXTILE

Fusion Weld X **Extrusion Weld** X

DAILY SEAM STRENGTH TEST

Date of Test	Time of Test	Ambient Air Temp.	Unit Temp.	Pre-Heat Temp.	Unit Speed	Peel Value Inside/Outside	Sheer Value	Welding Tech.	Unit No.	Pass/ Fail
5/31/09	7:00	58	800		6.5	135/134	170	RG	0033	P
						124/126	177			
						131/130				
5/31/09	7:00	58	800			127/113	172	JH	1548	P
						125/138	177			
						131/120				
						/				
5/31/09	8:30	65	500	450		108/	146	SS	1549	P
						94/	145			
						93/				
						/				
						/				

DAILY RECAP

Quantity Installed	Weather	Contract Labor Hours	Equipment Maintenance / Greasing
0	70&SUNNY	0	T-300

Comments: FINSHED POND #1. RAN TIE IN AND AIRTESTED. DID REPAIRS AND V-BOXED. MOVED EXTRA SANDBAGS OUT AND PICKED UP TRASH

CLI - CLEARWATER CONSTRUCTION

Quality Control Air Testing

Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Date of Test	Start Time	End Time	Seam No.	Seam Length	AC	AL	VB	ST	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
5/30/09	10:36	10:41	6-8	0-28	X				35-34	SOUTH TIE IN JH	1548	7.4	800
"	10:54	10:59	6-7	28-33	X				32-32	"	"	"	"
"	10:25	10:30	4-7	33-65	X				32-32	"	"	"	"
"	10:15	10:20	1-3	65-87	X				32-30	JH	1548	7.4	800
"	10:20	10:25	1-2	87-111	X				31-30	SOUTH TIE IN CONT. RG	0033	7.0	800
"	10:15	10:20	1-5	111-133	X				32-31	"	"	"	"
"	10:07	10:12	9-11	133-162	X				30-29	"	"	"	"
"	9:58	10:03	10-12	162-196	X				30-29	SOUTH TIE IN END RG	0033	7.0	800
"	9:58	10:03	11-12	28'	X				33-32	W WALL TO SOUTH TIE IN RG	0033	8.0	800
"	10:07	10:12	1-11	55'	X				32-32	" JH	1548	7.4	800
"	10:35	10:40	7-8	27'	X				35-35	E WALL TO S TIE IN RG	0033	7.0	800
"	10:25	10:30	1-7	55'	X				32-32	" JH	1548	7.4	800
"	11:00	11:05	1-13	75-94	X				30-29	FLOOR TO CROSS JH	1548	7.4	800
"	11:05	11:10	1-14	94-178	X				32-32	"	"	"	"
5/30/09	10:30	10:35	6-4	30	X				35-34	S WALL RG	0033	7.0	800
"	10:47	10:52	4-3	51	X				37-36	" RG	"	"	"
"	10:15	10:20	3-2	51	X				35-35	JH	1548	7.4	800
"	10:15	10:20	2-5	52	X				35-34	JH	"	"	"
"	10:07	10:12	5-9	52	X				33-33	JH	"	"	"
"	10:06	10:11	9-10	31	X				31-30	RG	0033	7.0	800
5/30/09	10:10	10:15	1-14	82	X				33-33	JH	1548	7.4	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

CLI - CLEARWATER CONSTRUCTION

Quality Control Air Testing

Project: HAYS EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
5/30/09	11:00	11:05	1-13	82-102	X				30-29	FLOOR JH	1542	7.4	800
"	11:00	11:05	1-13	102-174	X				30-29	"	"	"	"
"	"	"	14-15	0-63	X				30-29	" RG	0033	8.0	800
"	"	"	14-15	63-82	X				30-29	"	"	"	"
"	11:07	11:12	13-15	82-175	X				35-35	"	"	"	"
"	11:00	11:05	13-14	23	X				35-34	CROSS RG	0033	7.0	800
"	11:55	12:00	15-17	51	X				31-30	FLOOR JH	1542	7.4	800
"	11:40	11:45	15-16	51-176	X				35-34	" JH	1542	7.4	800
"	11:37	11:42	17-18	51	X				35-34	RG	0033	7.0	800
"	"	"	16-18	51-73	X				35-34	"	"	"	"
"	"	"	16-18	73-176	X				35-34	"	"	"	"
"	11:26	11:31	16-17	23	X				35-35	CROSS RG	"	"	"
"	11:45	11:50	18-20	53	X				35-34	FLOOR JH	1542	7.4	800
"	"	"	18-19	53-176	X				35-35	"	"	"	"
"	11:58	12:03	19-20	23	X				31-30	CROSS RG FLOOR END	0033	7.0	800
5/31/09	8:10	8:15	24-27	0-6	X				30-29	N TIE IN RG	0033	7.0	800
"	8:15	8:20	24-26	6-22	X				34-33	"	"	"	"
"	8:25	8:30	23-26	22-38	X				30-30	"	"	"	"
"	8:28	8:33	23-20	38-57	X				35-35	"	"	"	"
"	8:37	8:42	22-19	57-88	X				32-32	"	"	"	"
"	8:55	9:00	21-19	88-111	X				35-34	N TIE IN CONT. JH	1542	7.4	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

CLI - CLEARWATER CONSTRUCTION

Quality Control Air Testing

Project: HAYS EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
5/31/09	9:06	9:11	19-28	111-133	X				33-31	N TIE IN CONT. JH	1548	7.4	800
"	9:10	9:15	29-31	133-161	X				35-35	"	"	"	"
"	9:17	9:22	30-32	161-189	X				32-31	N TIE IN END JH	"	"	"
"	9:13	9:18	31-32	25	X				35-35	E WALL TO N TIE IN JH	"	"	"
"	9:03	9:08	19-31	50	X				31-31	" RG	0033	7.0	800
"	8:23	8:28	20-26	20	X				31-31	W WALL TO N TIE IN RG	"	"	"
"	8:28	8:33	26-20	46	X				34-33	" JH	1548	7.4	800
"	8:25	8:30	24-23	32	X				34-33	N WALL JH	"	"	"
"	8:35	8:40	22-23	48	X				35-35	" RG	0033	7.0	800
"	8:48	8:53	21-22	48	X				33-33	JH	1548	7.4	800
"	8:55	9:00	21-28	48	X				31-30	RG	0033	7.0	800
"	9:03	9:08	28-29	49	X				31-30	JH	1548	7.4	800
5/31/09	9:10	9:15	29-30	27	X				30-30	N WALL END JH	"	"	"

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

CLI - CLEARWATER CONSTRUCTION

Field Seam Destructive Test

Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Destruct No.	Date of Test	Welder No.	Welder Temp.	Welder Speed	Seam No.	Time of Test	Welder's Name	Peel Value Inside/Outside	Sheer Value	(Pass/Fail)
1	5/30/09	1548	800	7.4	16-18	2:21	JH	121/114	137	P
								116/121	140	P
								116/106		
2	5/31/09	1548	800	6.4	21-22	10:00	JH	123/118	155	P
								109/128	151	P
								115/118		

CLI - CLEARWATER CONSTRUCTION

Quality Control Air Testing

Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
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Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
5/30/09	10:36	10:41	6-8	0-28	X				35-34	SOUTH TIE IN JH	1548	7.4	800
"	10:54	10:59	6-7	28-33	X				32-32	"	"	"	"
"	10:25	10:30	4-7	33-65	X				32-32	"	"	"	"
"	10:15	10:20	1-3	65-87	X				32-30	JH	1548	7.4	800
"	10:20	10:25	1-2	87-111	X				31-30	SOUTH TIE IN CONT. RG	0033	7.0	800
"	10:15	10:20	1-5	111-133	X				32-31	"	"	"	"
"	10:07	10:12	9-11	133-162	X				30-29	"	"	"	"
"	9:58	10:03	10-12	162-196	X				30-29	SOUTH TIE IN END RG	0033	7.0	800
"	9:58	10:03	11-12	28'	X				33-32	W WALL TO SOUTH TIE IN RG	0033	8.0	800
"	10:07	10:12	1-11	55'	X				32-32	" JH	1548	7.4	800
"	10:35	10:40	7-8	27'	X				35-35	E WALL TO S TIE IN RG	0033	7.0	800
"	10:25	10:30	1-7	55'	X				32-32	" JH	1548	7.4	800
"	11:00	11:05	1-13	75-94	X				30-29	FLOOR TO CROSS JH	1548	7.4	800
"	11:05	11:10	1-14	94-178	X				32-32	"	"	"	"
5/30/09	10:30	10:35	6-4	30	X				35-34	S WALL RG	0033	7.0	800
"	10:47	10:52	4-3	51	X				37-36	" RG	"	"	"
"	10:15	10:20	3-2	51	X				35-35	JH	1548	7.4	800
"	10:15	10:20	2-5	52	X				35-34	JH	"	"	"
"	10:07	10:12	5-9	52	X				33-33	JH	"	"	"
"	10:06	10:11	9-10	31	X				31-30	RG	0033	7.0	800
5/30/09	10:10	10:15	1-14	82	X				33-33	JH	1548	7.4	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

CLI - CLEARWATER CONSTRUCTION

Quality Control Air Testing

Project: HAYS EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
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Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

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"	11:00	11:05	1-13	102-174	X				30-29	"	"	"	"
"	"	"	14-15	0-63	X				30-29	" RG	0033	8.0	800
"	"	"	14-15	63-82	X				30-29	"	"	"	"
"	11:07	11:12	13-15	82-175	X				35-35	"	"	"	"
"	11:00	11:05	13-14	23	X				35-34	CROSS RG	0033	7.0	800
"	11:55	12:00	15-17	51	X				31-30	FLOOR JH	1542	7.4	800
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"	"	"	16-18	51-73	X				35-34	"	"	"	"
"	"	"	16-18	73-176	X				35-34	"	"	"	"
"	11:26	11:31	16-17	23	X				35-35	CROSS RG	"	"	"
"	11:45	11:50	18-20	53	X				35-34	FLOOR JH	1542	7.4	800
"	"	"	18-19	53-176	X				35-35	"	"	"	"
"	11:58	12:03	19-20	23	X				31-30	CROSS RG FLOOR END	0033	7.0	800
5/31/09	8:10	8:15	24-27	0-6	X				30-29	N TIE IN RG	0033	7.0	800
"	8:15	8:20	24-26	6-22	X				34-33	"	"	"	"
"	8:25	8:30	23-26	22-38	X				30-30	"	"	"	"
"	8:28	8:33	23-20	38-57	X				35-35	"	"	"	"
"	8:37	8:42	22-19	57-88	X				32-32	"	"	"	"
"	8:55	9:00	21-19	88-111	X				35-34	N TIE IN CONT. JH	1542	7.4	800

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CLI - CLEARWATER CONSTRUCTION

Quality Control Air Testing

Project: HAYS EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Date of Test	Start Time	End Time	Seam No.	Seam Length	AC	AL	VB	ST	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
5/31/09	9:06	9:11	19-28	111-133	X				33-31	N TIE IN CONT. JH	1548	7.4	800
"	9:10	9:15	29-31	133-161	X				35-35	"	"	"	"
"	9:17	9:22	30-32	161-189	X				32-31	N TIE IN END JH	"	"	"
"	9:13	9:18	31-32	25	X				35-35	E WALL TO N TIE IN JH	"	"	"
"	9:03	9:08	19-31	50	X				31-31	" RG	0033	7.0	800
"	8:23	8:28	20-26	20	X				31-31	W WALL TO N TIE IN RG	"	"	"
"	8:28	8:33	26-20	46	X				34-33	" JH	1548	7.4	800
"	8:25	8:30	24-23	32	X				34-33	N WALL JH	"	"	"
"	8:35	8:40	22-23	48	X				35-35	" RG	0033	7.0	800
"	8:48	8:53	21-22	48	X				33-33	JH	1548	7.4	800
"	8:55	9:00	21-28	48	X				31-30	RG	0033	7.0	800
"	9:03	9:08	28-29	49	X				31-30	JH	1548	7.4	800
5/31/09	9:10	9:15	29-30	27	X				30-30	N WALL END JH	"	"	"

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CLI - CLEARWATER CONSTRUCTION

Field Seam Destructive Test

Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Destruct No.	Date of Test	Welder No.	Welder Temp.	Welder Speed	Seam No.	Time of Test	Welder's Name	Peel Value Inside/Outside	Sheer Value	(Pass/Fail)
1	5/30/09	1548	800	7.4	16-18	2:21	JH	121/114	137	P
								116/121	140	P
								116/106		
2	5/31/09	1548	800	6.4	21-22	10:00	JH	123/118	155	P
								109/128	151	P
								115/118		

CLI / CLEARWATER
1062 Singing Hills Road Parker, Colorado 80138 / 1-800-524-8672 / 303-841-2022 / Fax 303-841-5780 / www.coloradolining.com

CLI - CLEARWATER CONSTRUCTION

Panel Placement Log

Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

Panel No.	Roll Number	Date	Material Type	Width	Length
1	0102	5/29/09	60 MIL HD	23	188'
2	"	"	"	"	57'
3	"	"	"	"	58'
4	"	"	"	"	57'
5	"	"	"	"	60'
6	0104	"	"	"	37'
7	"	"	"	"	62'
8	"	"	"	"	33'
9	"	"	"	"	59'
10	"	"	"	"	36'
11	"	"	"	"	63'
12	"	"	"	"	27'
13	"	"	"	"	98'
14	9705	"	"	"	88'
15	"	"	"	"	186'
16	"	"	"	"	134'
17	0103	"	"	"	55'
18	"	"	"	"	185'
19	"	"	"	"	133'
20	9754	5/29/09	"	"	56'
21	"	5/30/09	"	"	55'
22	"	"	"	"	54'
23	"	"	"	"	54'
24	"	"	"	"	36'
*P-24P25	"	5/30/09	60 MIL HD	23	12'

CLI - CLEARWATER CONSTRUCTION

Panel Placement Log

Project: HAYES EVAP PIT POND 1
Owner: WILLIAMS PRODUCTION
Engineer:
Contractor: MB CONSTRUCTION
Supervisor: ROGER BARNES
Material: 60 MIL HD 8OZ TEXTILE

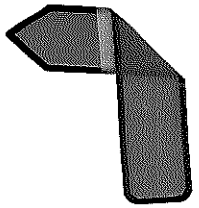
Panel No.	Roll Number	Date	Material Type	Width	Length
26	9754	5/30/09	60 MIL HD	23'	56'
27	"	"	"	"	27'
28	"	"	"	"	57'
29	0107	"	"	"	55'
30	"	"	"	"	53'
31	"	"	"	"	60'
32	0107	5/30/09	"	"	32'

Pond #1

Hay's Swap Pit

COLORADO LINING INTERNATIONAL

Quality Control Air Testing



Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
12/2/10	1:00	1:05	9-10	55	X				32,32	S Wall Continue VT	0004	6.0	800
12/2/10	12:28	12:33	10-11	55	X				31,30	S Wall RG	1662	6.0	800
12/2/10	12:13	12:18	11-12	55	X				34,32	S Wall RG	1662	6.0	800
12/2/10	12:10	12:15	12-13	54	X				35,34	S Wall RG	1662	6.0	800
12/2/10	11:49	11:54	13-14	53	X				31,31	S Wall VT	0004	6.0	800
12/2/10	11:30	11:35	14-15	46	X				31,30	S Wall VT	0004	6.0	800
12/2/10	11:00	11:05	15-16	20	X				30,30	S Wall End	0004	6.0	800
12/2/10	11:15	11:20	17-18	27	X				34,34	W Wall	0004	6.0	800
12/2/10	11:35	11:40	1-18	54	X				33,32	W Wall End	0004	6.0	800
12/2/10	2:17	2:22	5-6	31	X				33,33	E Wall RG	1662	6.0	800
12/2/10	1:40	1:45	1-5	54	X				34,33	E Wall End VT	0004	6.0	800
12/3/10	9:04	9:09	1-19	0-266	X				31,31	Floor	0004	6.0	800
12/3/10	9:05	9:10	1-19	266-290	X				30,30	Floor	0004	6.0	800
12/3/10	8:45	8:50	19-21	0-182	X				34,34	Floor to Cross RG	1662	6.0	800
12/3/10	8:40	8:45	19-20	182-299	X				33,32	Cross to Floor	1662	6.0	800
12/3/10	8:40	8:45	20-21	23	X				30,30	Cross	1662	6.0	800
12/3/10	8:52	8:57	20-22	0-113	X				32,32	Floor to Cross VT	0004	6.0	800
12/3/10	8:52	8:57	21-22	113-296	X				33,33	Cross to Floor	0004	6.0	800
12/4/10	11:12	11:17	22-23	295	X				35,35	Floor MA	0004	6.0	800
12/4/10	11:12	11:17	23-25	0-57	X				30,30	Floor to Cross JB	1662	5.5	800
12/4/10	11:12	11:17	23-24	57-296	X				34,34	Cross to Floor	1662	5.5	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

COLORADO LINING INTERNATIONAL

Quality Control Air Testing

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
12/4/10	11:24	11:29	24-25	23	X				33,33	Cross JB	1662	5.5	800
12/4/10	11:24	11:29	24-26	0-238	X				35,35	Floor to Cross MA	0004	6.0	800
12/4/10	11:12	11:17	25-26	238-296	X				35,35	Cross to Floor MA	0004	6.0	800
12/6/10	8:44	8:49	26-28	0-94	X				30,30	Floor to Cross MA	0004	5.5	800
12/6/10	9:07	9:12	26-27	94-293	X				35,35	Cross to Floor	0004	5.5	800
12/6/10	9:07	9:12	27-28	23	X				35,35	Cross JB	1662	5.5	800
12/6/10	9:07	9:12	27-29	0-196	X				35,35	Floor to Cross JB	1662	5.5	800
12/6/10	8:44	8:49	28-29	196-293	X				31,31	Cross to Floor	1662	5.5	800
12/6/10	8:44	8:49	29-30	0-143	X				30,30	Floor to Cross MA	0004	6.0	800
12/6/10	9:24	9:29	29-31	143-202	X				33,32	Cross to Floor	0004	6.0	800
12/6/10	10:17	10:22	29-31	202-223	X				30,30	Floor	0004	6.0	800
12/7/10	1:45	1:50	29-31	223-293	X				35,35	Floor	0004	6.0	800
12/6/10	9:24	9:29	30-31	23	X				30,30	Cross	0004	6.0	800
12/6/10	10:17	10:22	31-32	0-67	X				33,33	Floor JB	1662	5.5	800
12/6/10	9:24	9:29	31-32	67-149	X				35,35	Floor to Cross	1662	5.5	800
12/6/10	8:44	8:49	30-32	149-293	X				35,35	Cross to Floor	1662	5.5	800
12/6/10	10:30	10:45	32-34	0-173	X				35,35	Floor to Cross	1662	6.0	800
12/6/10	10:19	10:24	32-33	173-290	X				35,35	Cross to Floor	1662	6.0	800
12/6/10	10:19	10:24	33-34	23	X				35,35	Cross MA	0004	6.0	800
12/6/10	10:30	10:35	33-35	0-112	X				30,30	Floor to Cross	0004	6.0	800
12/6/10	10:30	10:35	34-35	112-291	X				31,30	Cross to Floor, Floor End	0004	6.0	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

COLORADO LINING INTERNATIONAL

Quality Control Air Testing

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
12/6/10	12:21	12:26	49-52	0-7	X				35,35	N Tie in JB	1662	6.0	800
12/6/10	12:21	12:26	49-51	7-31	X				30,30	N Tie in JB	1662	6.0	800
12/6/10	12:10	12:15	48-51	31-40	X				35,35	N Tie in JB	1662	6.0	800
12/6/10	12:10	12:15	48-50	40-69	X				30,30	N Tie in JB	1662	6.0	800
12/6/10	12:00	12:05	35-47	69-88	X				35,35	N Tie in JB	1662	6.0	800
12/6/10	11:49	11:54	35-46	88-110	X				35,35	N Tie in JB	1662	6.0	800
12/6/10	11:49	11:54	35-46	110-133	X				35,35	N Tie in MA	0004	6.0	800
12/6/10	11:35	11:40	35-44	133-155	X				35,35	N Tie in MA	0004	6.0	800
12/6/10	11:35	11:40	35-43	155-177	X				35,35	N Tie in MA	0004	6.0	800
12/6/10	11:22	11:27	35-42	177-199	X				30,30	N Tie in MA	0004	6.0	800
12/6/10	11:22	11:27	35-41	199-222	X				35,35	N Tie in MA	0004	6.0	800
12/6/10	11:15	11:20	35-36	222-239	X				35,35	N Tie in MA	0004	6.0	800
12/6/10	11:01	11:06	36-39	239-248	X				35,35	N Tie in MA	0004	6.0	800
12/6/10	11:05	11:10	39-37	248-270	X				31,31	N Tie in MA	0004	6.0	800
12/6/10	10:55	11:00	37-40	270-283	X				31,31	N Tie in MA	0004	6.0	800
12/6/10	10:55	11:00	38-40	283-290	X				35,35	N Tie in MA	0004	6.0	800
	CAP		38-40	29-305			X			N Tie in End	0004	6.0	800
12/6/10	10:55	11:00	37-38	24	X				35,35	N Wall	0004	6.0	800
12/6/10	11:07	11:12	36-37	52	X				30,30	N Wall JB	1662	6.0	800
12/6/10	11:22	11:27	36-41	59	X				30,30	N Wall MA	0004	6.0	800
12/6/10	11:22	11:27	41-42	60	X				32,31	N Wall MA	0004	6.0	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

COLORADO LINING INTERNATIONAL

Quality Control Air Testing

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
12/6/10	11:35	11:40	42-43	60	X				30,30	N Wall Continue JB	1662	6.0	800
12/6/10	11:35	11:40	43-44	62	X				35,35	N Wall JB	1662	6.0	800
12/6/10	11:49	11:54	44-45	62	X				31,30	N Wall JB	1662	6.0	800
12/6/10	11:49	11:54	45-46	63	X				35,35	N Wall MA	0004	6.0	800
12/6/10	12:00	12:05	46-47	63	X				35,35	N Wall MA	0004	6.0	800
12/6/10	12:10	12:15	47-48	61	X				30,30	N Wall JB	1662	6.0	800
12/6/10	12:21	12:26	48-49	37	X				35,35	N Wall End	1662	6.0	800
12/6/10	12:00	12:05	35-50	61	X				33,32	W Wall MA	0004	6.0	800
12/6/10	12:10	12:15	50-51	44	X				30,30	W Wall JB	1662	6.0	800
12/6/10	12:21	12:26	51-52	10	X				30,30	W Wall End	1662	6.0	800
12/6/10	11:16	11:21	35-39	0-10	X				31,31	E Wall MA	0004	6.0	800
12/6/10	11:15	11:20	35-39	10-61	X				31,31	E Wall MA	0004	6.0	800
12/6/10	11:05	11:10	39-40	37	X				35,35	E Wall End	0004	6.0	800

AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test

COLORADO LINING INTERNATIONAL

Quality Control Air Testing

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Date of Test	Start Time	End Time	Seam No.	Seam Length	A C	A L	V B	S T	Pass/Fail	Welding Technician	Welder No.	Welder Speed	Welder Temp.
12/2/10	11:00	11:05	16-18	0-18	X				30,30	S Tie in VT	0004	6.0	800
12/2/10	11:00	11:05	15-18	18-28	X				32,32	S Tie in VT	0004	6.0	800
12/2/10	11:5	11:20	15-17	28-50	X				32,32	S Tie in VT	0004	6.0	800
12/2/10	11:30	11:35	14-17	50-64	X				30,30	S Tie in VT	0004	6.0	800
12/2/10	11:50	11:55	1-14	64-75	X				34,33	S Tie in VT	0004	6.0	800
12/2/10	11:49	11:54	1-13	75-97	X				32,32	S Tie in VT	0004	6.0	800
12/2/10	12:10	12:15	1-12	97-119	X				33,33	S Tie in VT	0004	6.0	800
12/2/10	12:25	12:30	1-11	119-140	X				33,32	S Tie in VT	0004	6.0	800
12/2/10	12:28	12:33	1-10	140-162	X				32,32	S Tie in VT	0004	6.0	800
12/2/10	1:00	1:05	1-9	162-184	X				31,31	S Tie in VT	0004	6.0	800
12/2/10	1:12	1:17	1-8	184-207	X				32,31	S Tie in VT	0004	6.0	800
12/2/10	1:12	1:17	1-7	207-228	X				32,31	S Tie in RG	1662	6.0	800
12/2/10	1:26	1:30	1-2	228-246	X				33,33	S Tie in RG	1662	6.0	800
12/2/10	1:40	1:45	3-5	246-275	X				31,31	S Tie in RG	1662	6.0	800
12/2/10	2:17	2:22	3-6	275-285	X				32,32	S Tie in RG	1662	6.0	800
12/2/10	2:21	2:26	4-6	285-308	X				32,31	S Tie in End	1662	6.0	800
12/2/10	2:21	2:26	3-4	24	X				33,33	S Wall RG	1662	6.5	800
12/2/10	2:44	2:59	2-3	55	X				32,31	S Wall VT	0004	6.0	800
12/2/10	1:25	1:30	3-7	55	X				31,30	S Wall VT	0004	6.0	800
12/2/10	1:12	1:17	7-8	55	X				33,33	S Wall VT	0004	6.0	800
12/2/10	1:02	1:07	8-9	55	X				33,33	S Wall VT	0004	6.0	800
AC=Air Channel Test AL=Air Lance Test VB=Vacuum Box Test ST=Spark Test													

COLORADO LINING INTERNATIONAL

Field Seam Destructive Test

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL SMTH GEONET

Destruct No.	Date of Test	Welder No.	Welder Temp.	Welder Speed	Seam No.	Time of Test	Welder's Name	Peel Value Inside/Outside	Sheer Value	(Pass/Fail)
1	12/7/10	0004	800	6.0	1,19	9:45	VT	133/129	184	P
								133/136	189	
								120/123	189	
								132/123		
								134/126		
2	12/7/10	1662	800	6.0	19,20	10:00	RG	149/128	187	P
								122/120	191	
								137/131	188	
								142/125		
								119/132		
3	12/7/10	0004	800	5.5	22,23	10:15	MA	154/147	188	P
								141/147	181	
								139/147	182	
								142/139		
								127/137		
4	12/7/10	1662	800	5.5	23,24	10:30	JB	131/144	190	P
								134/136	193	
								127/124	192	
								129/128		
								118/128		

COLORADO LINING INTERNATIONAL
1062 Singing Hills Road Parker, Colorado 80138 / 1-800-524-8672 / 303-841-2022 / Fax 303-841-5780 / www.coloradolining.com

COLORADO LINING INTERNATIONAL

Field Seam Destructive Test

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL SMTH GEONET

Destruct No.	Date of Test	Welder No.	Welder Temp.	Welder Speed	Seam No.	Time of Test	Welder's Name	Peel Value Inside/Outside	Sheer Value	(Pass/Fail)
5	12/7/10	0004	800	5.5	24,26	10:45	MA	141/129	189	P
								134/132	177	
								119/125	187	
								139/131		
								126/122		
6	12/7/10	1662	800	5.5	27,29	11:00	JB	125/127	194	P
								119/127	184	
								130/132	190	
								125/137		
								132/129		
7	12/7/10	1662	800	5.5	30,32	11:15	JB	119/155	189	P
								124/147	192	
								122/139	189	
								124/159		
								119/149		
8	12/7/10	0004	800	6.0	33,35	11:30	MA	117/124	192	P
								123/121	197	
								124/132	191	
								128/125		
								125/132		

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COLORADO LINING INTERNATIONAL

Field Seam Destructive Test

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL SMTH GEONET

Destruct No.	Date of Test	Welder No.	Welder Temp.	Welder Speed	Seam No.	Time of Test	Welder's Name	Peel Value Inside/Outside	Sheer Value	(Pass/Fail)
9	12/7/10	0004	800	6.0	36,37	11:40	MA	135/137	192	P
								130/142	193	
								133/148	190	
								126/140		
								134/141		
10	12/7/10	1662	800	6.0	44,45	12:00	JB	128/124	185	P
								129/120	183	
								127/128	184	
								126/143		
								128/137		

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COLORADO LINING INTERNATIONAL

Panel Placement Log

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Panel No.	Roll Number	Date	Material Type	Width	Length
1	5762	11/20/10	60 MIL HDPE	22.5	308
2	5762	11/20/10	60 MIL HDPE	22.5	60
3	5762	11/20/10	60 MIL HDPE	22.5	57
4	5762	11/20/10	60 MIL HDPE	22.5	27
5	5762	11/20/10	60 MIL HDPE	22.5	57
6	5761	11/20/10	60 MIL HDPE	22.5	34
7	5761	11/20/10	60 MIL HDPE	22.5	60
8	5761	11/20/10	60 MIL HDPE	22.5	61
9	5761	11/20/10	60 MIL HDPE	22.5	60
10	5761	11/20/10	60 MIL HDPE	22.5	60
11	5761	11/20/10	60 MIL HDPE	22.5	60
12	5761	11/20/10	60 MIL HDPE	22.5	61
13	5761	11/20/10	60 MIL HDPE	22.5	60
14	5761	11/20/10	60 MIL HDPE	22.5	59
15	5773	11/20/10	60 MIL HDPE	22.5	48
16	5773	11/20/10	60 MIL HDPE	22.5	24
17	5773	11/20/10	60 MIL HDPE	22.5	59
18	5773	11/20/10	60 MIL HDPE	22.5	31
19	5773	11/20/10	60 MIL HDPE	22.5	308
20	5773	11/20/10	60 MIL HDPE	22.5	120
21	5758	11/20/10	60 MIL HDPE	22.5	186
22	5758	11/20/10	60 MIL HDPE	22.5	308
23	5770	12/4/10	60 MIL HDPE	22.5	303
24	5770	12/4/10	60 MIL HDPE	22.5	243
25	5771	12/4/10	60 MIL HDPE	22.5	60

COLORADO LINING INTERNATIONAL

Panel Placement Log

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Panel No.	Roll Number	Date	Material Type	Width	Length
26	5771	12/4/10	60 MIL HDPE	22.5	300
27	5771	12/5/10	60 MIL HDPE	22.5	198
28	5772	12/5/10	60 MIL HDPE	22.5	100
29	5772	12/5/10	60 MIL HDPE	22.5	300
30	5772	12/5/10	60 MIL HDPE	22.5	152
31	5767	12/5/10	60 MIL HDPE	22.5	148
32	5767	12/5/10	60 MIL HDPE	22.5	300
33	5767	12/5/10	60 MIL HDPE	22.5	118
34	5766	12/5/10	60 MIL HDPE	22.5	183
35	5766	12/5/10	60 MIL HDPE	22.5	293
36	5774	12/5/10	60 MIL HDPE	22.5	61
37	5774	12/5/10	60 MIL HDPE	22.5	56
38	5774	12/5/10	60 MIL HDPE	22.5	25
39	5774	12/5/10	60 MIL HDPE	22.5	62
40	5774	12/5/10	60 MIL HDPE	22.5	39
41	5774	12/5/10	60 MIL HDPE	22.5	63
42	5774	12/5/10	60 MIL HDPE	22.5	63
43	5774	12/5/10	60 MIL HDPE	22.5	65
44	5774	12/5/10	60 MIL HDPE	22.5	67
45	5774	12/5/10	60 MIL HDPE	22.5	66
46	5768	12/5/10	60 MIL HDPE	22.5	66
47	5768	12/5/10	60 MIL HDPE	22.5	66
48	5768	12/5/10	60 MIL HDPE	22.5	62
49	5768	12/5/10	60 MIL HDPE	22.5	42
50	5768	12/5/10	60 MIL HDPE	22.5	62

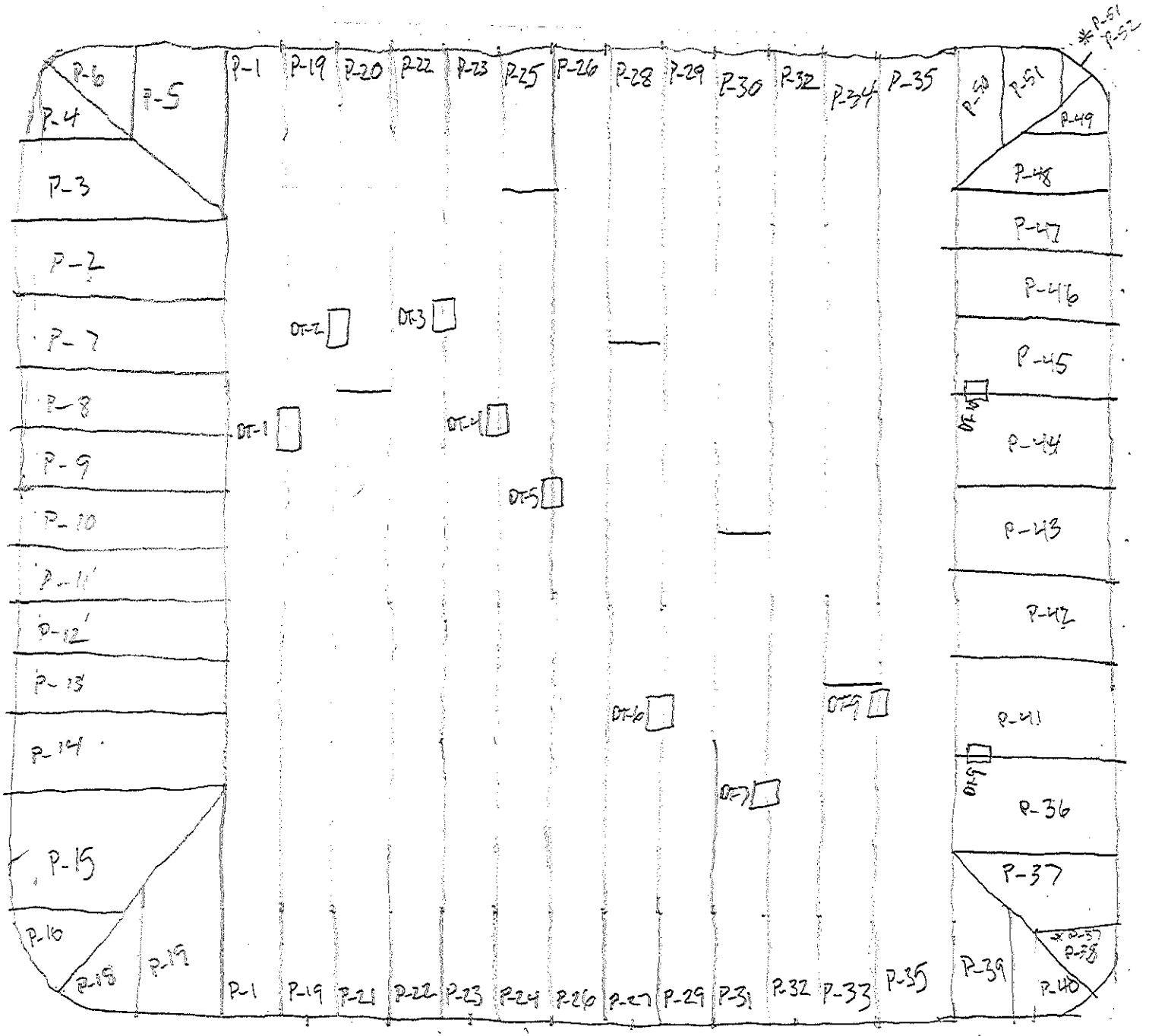
COLORADO LINING INTERNATIONAL

Panel Placement Log

Project: HAYES PIT LINER
Owner: WILLIAMS
Engineer:
Contractor: WILLIAMS
Supervisor: ROGER BARNES
Material: 60 MIL HDPE

Panel No.	Roll Number	Date	Material Type	Width	Length
51	5768	12/5/10	60 MIL HDPE	22.5	50
52	5768	12/5/10	60 MIL HDPE	22.5	15

HAYES EVAP PIT
CLI



CLI - CLEARWATER CONSTRUCTION

Sub grade Acceptance

Date: 6/17/09

Project:	**HAYES EVAP PIT**
Owner:	**WILLIAMS PRODUCTION**
Engineer:	
Contractor:	**MB CONSTRUCTION**
Installation Supervisor:	**ROGER BARNES**
Material:	**60 MIL HDT, 8 OZ TEXTILE**

Is surface acceptable for placement of geomembranes? Yes ✓ No ___

Comments _____

Date: 6/17/09

Accepted By Representative of Owner/Owner (Signature) _____

I certify that I am a representative with the authority to provide this acceptance and recognize that if this is not a true statement that I will be held personally responsible for the integrity of the inspection.

Print Name/Title: RICHARD TENINTY SUPERVISOR

Company: MB

Witnessed By Representative of CLC (Signature) _____

Print Name/Title Roger Barnes Super

This document only applies to the acceptability of the surface conditions for the installation of the geosynthetic products. Colorado Lining Construction (CLC) does not accept responsibility for anchor trench elevation or design, elevation points for construction, sub-grade compaction, moisture content of neither the sub-grade nor the surface maintenance during deployment. The structural integrity of the sub-grade and maintenance of these conditions are the responsibility of the owner, engineer or contractor. Furthermore, any incidental damage to the liner or seams (e.g. groundwater, gases, cover soil placement and sub-grade movement) during or after the installation is not covered by any warranty expressed or implied and the design, engineering and construction are the responsibility of the owner, engineer and/or contractor.

CLI - CLEARWATER CONSTRUCTION

Geomembrane Installation Approval

Project:	HAYES EVAP PIT
Owner:	WILLIAMS PRODUCTION
Engineer:	
Contractor:	MB CONSTRUCTION
Supervisor:	ROGER BARNES
Material:	60 MIL HDT, 8 OZ TEXTILE

The Geomembrane on this project has been installed, inspected and tested in accordance with Industry Standards and Manufacturer recommendations.

Date: 6/17/09

Accepted By: (Signature) Richard Tenity

Print Name/Title: Richard Tenity

Company: MB

Comments:

All warranties to begin on the date of completion.
Warranties to be issued upon receipt of final payment

HIS MEMORANDUM is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

AME OF CARRIER	CARRIER'S NO.	DATE	B/L NO.
PICK UP @ PLANT		5/18/2009	001472

ECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
e property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier
id throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deli
id rrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or a
id rty, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the
ireof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
hipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and condi
e hereby agreed to by the shipper and accepted for himself and his assigns.

FROM: SHIPPER (ORIGIN)	TO: CONSIGNEE / STREET / DESTINATION
AGRU/AMERICA, INC. 2000 East Newlands Drive Fernley, NV 89408 (775)835-8282	COLORADO LINING COMPANY CUSTOMER TO PICK UP AT PLANT DESTINATION: PARACHUTE, CO Resale Certificate on File USA DAN BOYLE-303-841-2022
EMERGENCY RESPONSE PHONE NO.	ZIP

DELIVERING CARRIER	ROUTE	VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ON
154,317		7 METER SMTH LINER HD 60MIL BLK	46,367			

Item Key	Roll Number	Quantity
L-HD-SMTH-060-7M	920109-09	9,645
L-HD-SMTH-060-7M	920110-09	9,645
L-HD-SMTH-060-7M	920111-09	9,645
L-HD-SMTH-060-7M	920112-09	9,645
L-HD-SMTH-060-7M	920113-09	9,645
L-HD-SMTH-060-7M	920114-09	9,645
L-HD-SMTH-060-7M	920115-09	9,645
L-HD-SMTH-060-7M	920116-09	9,645
L-HD-SMTH-060-7M	920117-09	9,645
L-HD-SMTH-060-7M	920118-09	9,645
L-HD-SMTH-060-7M	920119-09	9,645
L-HD-SMTH-060-7M	920120-09	9,645
L-HD-SMTH-060-7M	920121-09	9,645
L-HD-SMTH-060-7M	920122-09	9,645
L-HD-SMTH-060-7M	920123-09	9,645
L-HD-SMTH-060-7M	920224-09	9,645

Total Weight: 46,367 LB
Total Units: 16 rolls
Order No.: 12123 Order Date: 05/06/09 Request Date: 05/06/09
Location: NV P.O. No.: 24875

EMIT C.O.D. TO: AGRU/AMERICA, INC.
2000 East Newlands Drive
Fernley, NV 89408
(775)835-8282

C.O.D. Amt $

C.O.D. FEE
- Prepaid
✓ Collect $

TOTAL CHARGES $

f the shipment moves between two ports by a carrier by
ste law requires that the bill of lading shall state
ne "carrier's or shipper's weight".

Shipper's imprint in lieu of stamp; not a part of bill of lading
proved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Col

his is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transporta

Page 1 of 1

Shipper, Per BEN 5-18-09 Agent, Per

rmanent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.
hen transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response ommunication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

HIS ~~MEMORANDUM~~ is an acknowledgment that a Bill of Lading has been issued and is not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or records.

PICK UP @ PLANT

AME OF CARRIER	CARRIER'S NO.	DATE	B/L NO.
		5/18/2009	001473

:CEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of issue of this Bill of Lading,
e property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below which said carrier (the word carrier i
id throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliv
o rrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or a
io rty, that every service to be performed hereunder, shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the
reof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment.
ipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and condi
e hereby agreed to by the shipper and accepted for himself and his assigns.

FROM: SHIPPER (ORIGIN)		TO: CONSIGNEE / STREET / DESTINATION
AGRU/AMERICA, INC. 2000 East Newlands Drive Fernley, NV 89408 (775)835-8282	EMERGENCY RESPONSE PHONE NO.	~~COLORADO LINING COMPANY~~ ~~CUSTOMER TO PICK UP AT PLANT~~ DESTINATION: PARACHUTE, CO Resale Certificate on File USA DAN BOYLE-303-841-2022 ZIP

DELIVERING CARRIER	ROUTE	VEHICLE NUMBER

NO. PACKAGES	+ HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES SPECIAL MARKS AND EXCEPTIONS	*WEIGHT (SUBJECT TO CORR.)	CLASS OR RATE	✓	CHARGES (FOR CARRIER USE ON
154,317		7 METER SMTH LINER HD 60MIL BLK	46,367			
264		WELD ROD MFG BLACK HDPE 5MM	264			

Item Key	Roll Number	Quantity
L-HD-SMTH-060-7M	919747-09	9,645
L-HD-SMTH-060-7M	919748-09	9,645
L-HD-SMTH-060-7M	919749-09	9,645
L-HD-SMTH-060-7M	919750-09	9,645
L-HD-SMTH-060-7M	919751-09	9,645
L-HD-SMTH-060-7M	919752-09	9,645
L-HD-SMTH-060-7M	919753-09	9,645
L-HD-SMTH-060-7M	919754-09	9,645
L-HD-SMTH-060-7M	920101-09	9,645
L-HD-SMTH-060-7M	920102-09	9,645
L-HD-SMTH-060-7M	920103-09	9,645
L-HD-SMTH-060-7M	920104-09	9,645
L-HD-SMTH-060-7M	920105-09	9,645
L-HD-SMTH-060-7M	920106-09	9,645
L-HD-SMTH-060-7M	920107-09	9,645
L-HD-SMTH-060-7M	920108-09	9,645

Total Weight: 46,631 LB
Total Units: 16 rolls/125 pcs
Order No.: 12123 Order Date: 05/06/09 Request Date: 05/06/09
Location: NV P.O. No.: 24875

EMIT C.O.D. TO:
AGRU/AMERICA, INC.
2000 East Newlands Drive
Fernley, NV 89408
(775)835-8282

C.O.D. Amt $

C.O.D. FEE
☐ Prepaid
☑ Collect $

f the shipment moves between two ports by a carrier by ater, the law requires that the bill of lading shall state h "carrier's or shipper's weight".

Shipper's imprint in lieu of stamp; not a part of bill of lading pproved by the Interstate Commerce Commission.

NOTE: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
$ per

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.
(Signature of Consignor)

TOTAL CHARGES $

Freight charges are PREPAID unless marked collect. ☐ Check box if charges are Co

his is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transport

Shipper, Per 5-18-09 Agent, Per

ermanent post office address of shipper

+ MARK WITH "X" TO DESIGNATE HAZARDOUS MATERIAL AS DEFINED IN TITLE 49 OF FEDERAL REGULATIONS.

When transporting hazardous materials include the technical or chemical name for n.o.s. (not otherwise specified) or generic description of material with appropriate UN or NA number as defined in US DOT Emergency Response Communication Standard (HM-126C). Provide emergency response phone number in case of incident or accident.

SOIL TEST

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

DAILY FIELD REPORT - FIELD DENSITY TESTS

Date: *Thursday, May/28/09*	**Arrive Time:** *11:45 AM* **Depart Time:**
Project Name: *Evaporation Pond*	**Weather:** *Overcast*
Project Number: *G09032MT*	**Temp:**
Client: *MB Construction*	**Client Representative:**
General Contractor:	**Supervisor:**
Specialty Contractor: *MB Construction*	**Specialty Superintendent or Foreman:** *Dick Teninty*
Source of Fill Material:	**Plans and Specs:** *N/A* **Dated:**

Contractor's Equipment Used: *Dozers, scrapers, backhoe, water truck and vibratory smooth drum compactor*

Lambert and Associates Equipment Used - Manufacturer: *CPN* **Serial Number or Unit Number:** *18*

Test Results were Verbally Given On-Site to: *Dick Teninty*

Expected Conditions Observed: *Yes*

Unexpected Conditions Observed: *No*

Unusual Conditions Observed: *No*

If yes, who was contacted?

Follow-up from Prior Visit: **Retests Performed:** *Yes*

Concerns for Next Visit: *None* **Retests Needed:**

Other personnel contacted on-site: name/firm

Notes:

I performed nuclear field density tests, as requested by DickTeninty with MB Construction, of material being placed for the construction of Evaporation Ponds Numbers One (1), Two (2) and Three (3). Please refer to the test results sheets for approximate test location and test results. The test results indicate only the relative compaction and soil moisture content of the material tested at the elevation and location tested at the time of our site visit.

Lambert and Associates Technician: *Hayes*

RELATIVE COMPACTION TEST RESULTS

PROJECT: Evaporation Pond | **PROJECT NO: G09032MT** | **DATE: Thursday, May/28/09**

SITE LOCATION: Parachute | **ENGINEERING TECHNICIAN: Hayes**

CLIENT: MB Construction | **NUCLEAR GAUGE USED: 18**

TEST NO	TEST LOCATION	DEPTH OR ELEVATION	PROBE DEPTH (IN)	LABORATORY PROCTOR DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	RELATIVE COMPACTION (%)	SOIL TYPE
	Approximate Test Locations								
	Pond #1								
2	Test #1 May/28/09 sketch	At Grade	8	121.5	12.0	113.5	12.9	93	Clay, Sandy, Gravelly, Brown
3	Test #2 May/28/09 sketch	"	8	121.5	12.0	117.0	14.0	96	" "
4	Test #3 May/28/09 sketch	"	8	118.0	13.0	104.9	14.1	89	Clay, Sandy, Brown
5	Retest of #4, this date	"	8	118.0	13.0	105.1	14.0	89	" "
	Pond #2								
6	Test #1 May/28/09 sketch	"	8	121.5	12.0	113.2	16.0	93	Clay, Sandy, Gravelly, Brown
7	Test #2 May/28/09 sketch	"	8	120.0	12.0	108.6	17.5	91	Clay, Sandy, Brown
8	Test #3 May/28/09 sketch	"	8	121.5	12.0	111.2	12.3	92	Clay, Sandy, Gravelly, Brown
	Pond #3								
9	Test #1 May/28/09 sketch	"	8	120.0	12.0	108.2	15.9	90	Clay, Sandy, Brown
10	Test #2 May/28/09 sketch	"	8	120.0	12.0	116.7	11.7	97	" "

REMARKS: The test results indicate only the density and moisture content for the location and elevation tested only.

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

Client: MB Construction

Date Received: May/8/09

Project: Evaporation Pond

Date Tested: May/13/09

Project Number: G09032MT

Sample Number: 1465

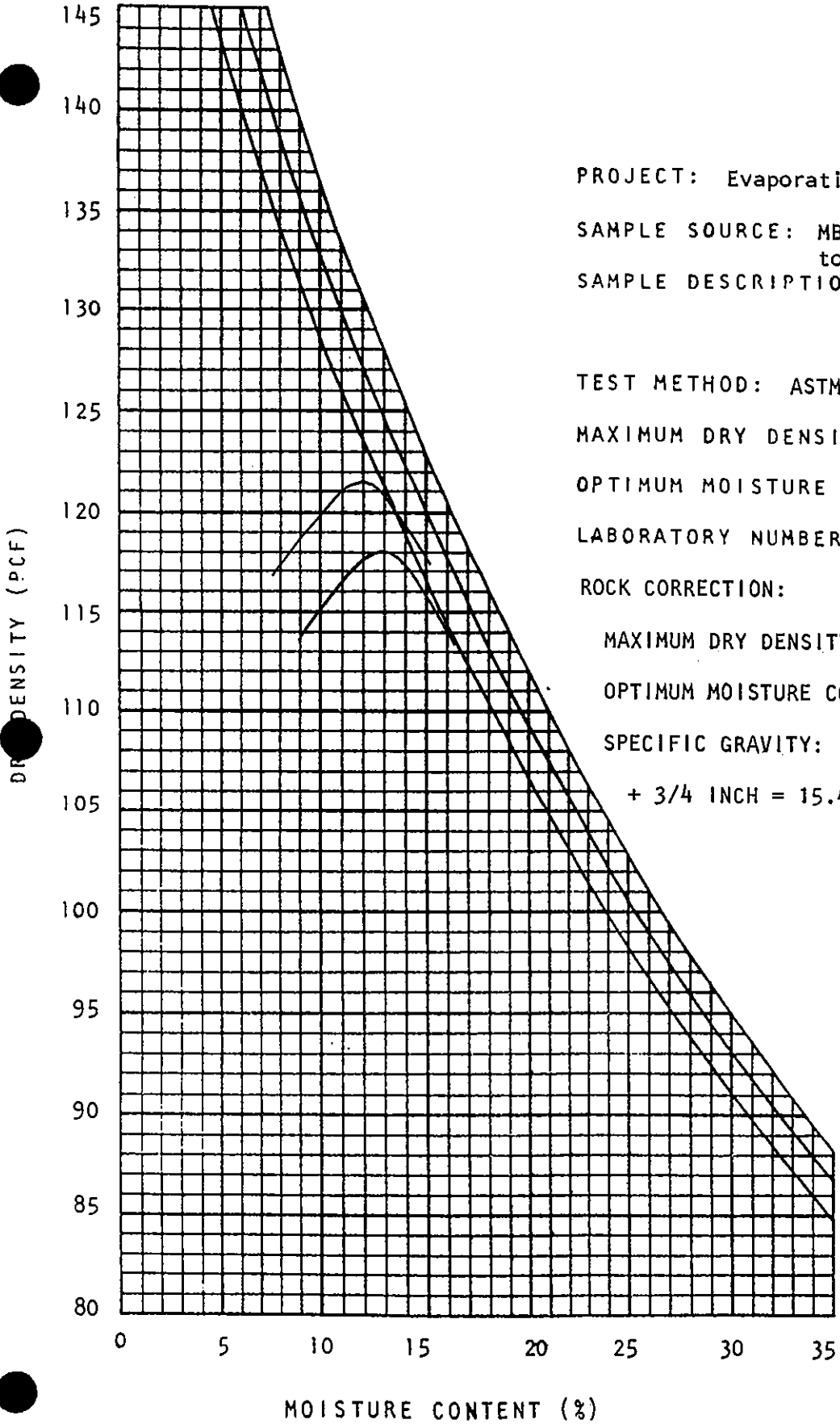
Location: Parachute, CO

Sample Source: MB Sample Number 3

Sample Description: Clay, Sand, Gravelly, Brown

CONSTANT HEAD PERMEABILITY TEST

Initial Moisture Content: 13.5%
Dry Unit Weight: 106.2 pcf
Permeability: 4.2×10^{-8} cm/sec



PROJECT: Evaporation Pond

SAMPLE SOURCE: MB Sample Number 4, Delivered to Grand Junction Office

SAMPLE DESCRIPTION: Clay, Sand, Gravelly, Brown

TEST METHOD: ASTM D1557C

MAXIMUM DRY DENSITY: 118.0 pcf

OPTIMUM MOISTURE CONTENT: 13.0%

LABORATORY NUMBER: 1466

ROCK CORRECTION:

MAXIMUM DRY DENSITY: 121.5 pcf

OPTIMUM MOISTURE CONTENT: 12.0%

SPECIFIC GRAVITY: 2.302

+ 3/4 INCH = 15.4% OF TOTAL WEIGHT

Lambert and Associates

Project No.:	G09032MT
Date:	May/8/2009
Figure:	

Lambert and Associates

CONSULTING GEOTECHNICAL ENGINEERS AND MATERIAL TESTING

Client: MB Construction

Date Received: May/8/09

Project: Evaporation Pond

Date Tested: May/14/09

Project Number: G09032MT

Sample Number: 1466

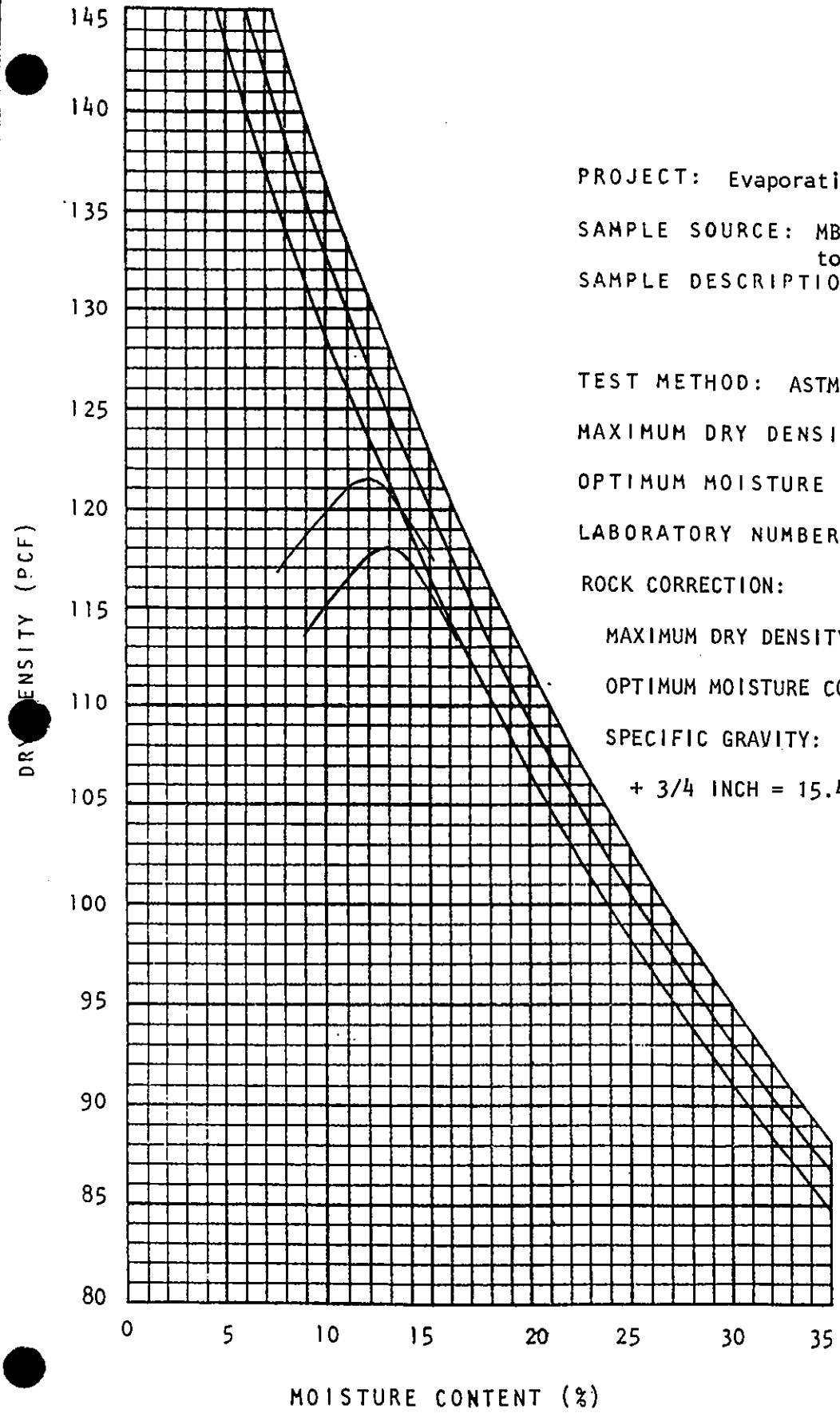
Location: Parachute, CO

Sample Source: MB Sample Number 4, Delivered to Grand Junction Office

Sample Description: Clay, Sand, Gravelly, Brown

CONSTANT HEAD PERMEABILITY TEST

Initial Moisture Content: 14.6%
Dry Unit Weight: 106.2 pcf
Permeability: 1.8×10^{-7} cm/sec



PROJECT: Evaporation Pond

SAMPLE SOURCE: MB Sample Number 4, Delivered to Grand Junction Office

SAMPLE DESCRIPTION: Clay, Sand, Gravelly, Brown

TEST METHOD: ASTM D1557C

MAXIMUM DRY DENSITY: 118.0 pcf

OPTIMUM MOISTURE CONTENT: 13.0%

LABORATORY NUMBER: 1466

ROCK CORRECTION:

MAXIMUM DRY DENSITY: 121.5 pcf

OPTIMUM MOISTURE CONTENT: 12.0%

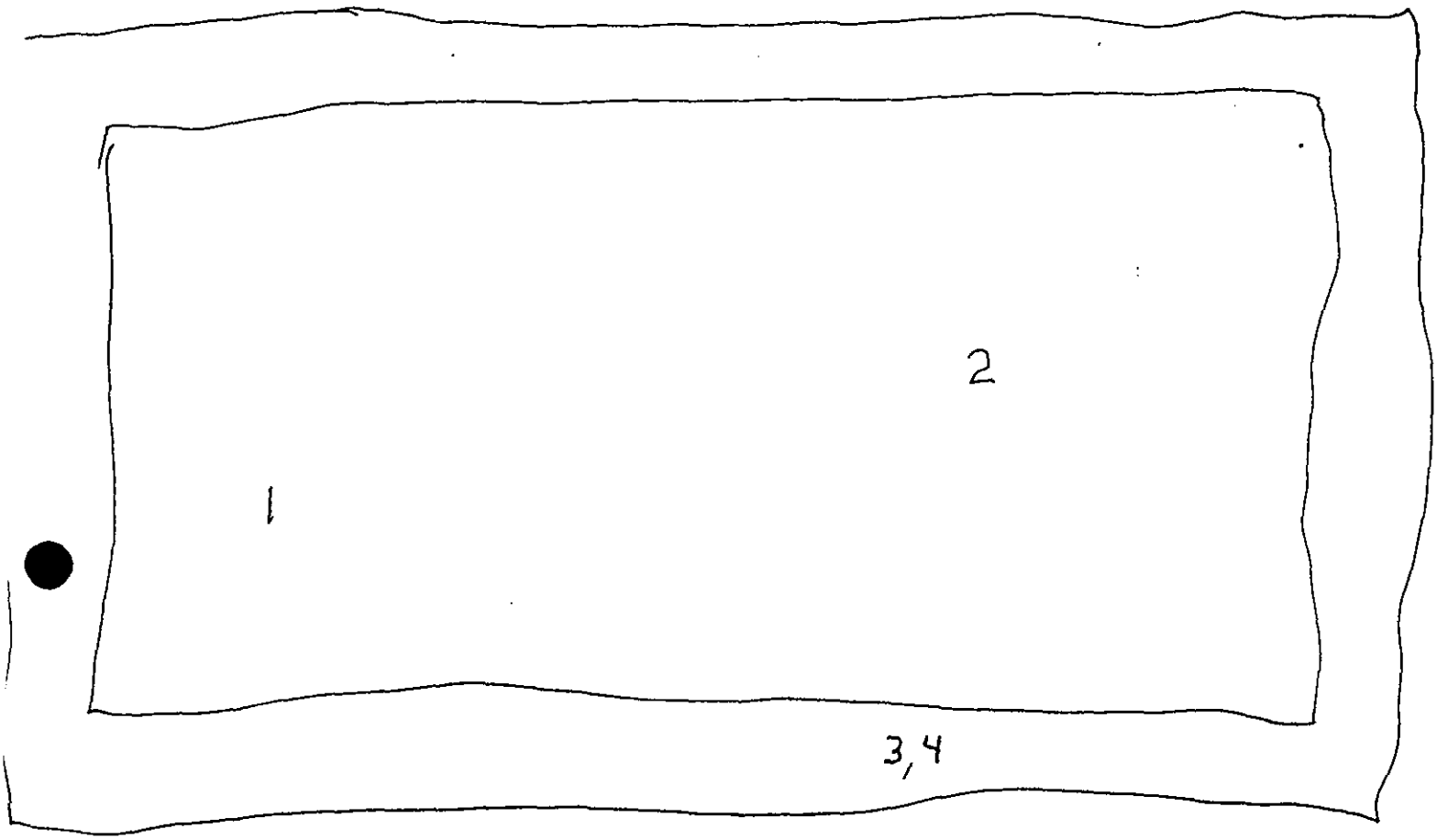
SPECIFIC GRAVITY: 2.302

+ 3/4 INCH = 15.4% OF TOTAL WEIGHT

Lambert and Associates

Project No.:	G09032MT
Date:	May/8/2009
Figure:	

Parachute Evaporation Pond #1
609032 mT
5-28-09



No Scale

Attachment C

Historical Use and Maintenance

Grand Valley Pit #1

Historical Use and Maintenance:

- The pit was historically utilized as produced water storage
- The pit was constructed in 2009 in accordance with the COGCC Rules applicable at that time.
- The pit bottom was compacted and originally lined with one 60 mil HDPE liner
- The pit was taken out of service in December 2010 in order to install the second 60 mil HDPE liner and a floating cover (See attachment B for the engineering evaluation of the liners installation and sub grade acceptance). The purpose of the pit cover is to meet the CDPHE air quality requirements. The second 60 mil HDPE liner was installed as an additional safety measures to mitigate potential leakage.
- During the installation of the secondary liner and the floating cover, the primary pit linear was cleaned and fully inspected.
- The pit with the new floating cover and the vapor recovery system was commissioned in December 2011.
- The historical maintenance consisted of regular inspections and general house cleaning.
- No repairs have been required on the Grand Valley Pit #1
- This pit is managed under close supervision and has minimal daily exposure to operations other than normal water movements.
- This pit will be in service for the life time of the WPX Energy wells located in the Piceance basin

Attachment D

Operation and Maintenance Plan

OPERATION AND MAINTENANCE

PLAN

Parachute Centralized E&P Waste Management Facility
Garfield County, Colorado

WPX Energy Rocky Mountain, LLC
February 29, 2012

Table of Contents

1.0 INTRODUCTION

WPX Energy Rocky Mountain, LLC (WPX) owns and operates the Parachute Water Management Facility (Parachute WMF) located in Garfield County, Colorado. Parachute WMF was constructed as a centralized waste management facility to process and recycle fluids that are generated from natural gas exploration and production and other WPX operations in the Piceance Basin. The facility was constructed in response to WPX's increasing natural gas production and continued drilling in the area and the need to cost effectively treat these fluids for re-use as well as disposal.

The Parachute WMF operates 24 hours per day, 365 days a year and is designed to process approximately 25,000 bbls per day (average annual basis) of fluids using different recovery, treatment and disposal processes. Maximizing recovery and re-use of these fluids is important to WPX's operations and contributes to overall company efficiency. Due to the facility size and volumes processed, attention to proper operation and maintenance of the Parachute WMF and its associated equipment is important to maintain high operational performance, minimize maintenance costs and ensure safe operation.

2.0 OPERATION

General Description

The Parachute WMF receives produced water, flow back and other fluids from natural gas production, well completion and other WPX operations in the Piceance Basin. These fluids are received by truck and pipeline at this facility and consist of mostly water with small amounts of non-aqueous free phase hydrocarbons, dissolved hydrocarbons and solids. These fluids are processed at this facility to treat and prepare these fluids for re-use in well completion or for disposal.

Fluids enter the Front-End of the facility by truck and are received at a multi-bay unloading station. Fluid streams by truck combine with fluids received by pipeline and flow into Inlet Skim Tanks where initial phase separation is allowed to occur. Recovered oil in the upper fluid phase is routed to Condensate Sales Tanks, mixed phase emulsions are routed to Emulsion Tanks for additional treating and recovered water is routed to Surge Tanks. Solids that accumulate at the bottom of the Inlet Skim Tanks are separated by cyclone with liquids routing back to the Inlet Skim Tanks and solids diverted to a Sand Tank. Accumulated solids in the Sand Tank are removed and processed through a filter press. Residual fluids recovered by filter press are pumped back to the Inlet Skim Tanks and the final dry solids are treated at the on-site Landfarm or taken to a commercial facility.

The water stream entering the Surge Tanks is allowed to accumulate allowing additional phase separation of residual hydrocarbons. Any recovered oil accumulated in the Surge Tanks is transferred to the Condensate Sales Tanks. The remaining water is routed to a set of Dissolved Air Flotation (DAF) units which utilize water clarifying agents to break the remaining emulsion and facilitate removal of residual hydrocarbons and solids. The DAF units capture these hydrocarbons and solids with dissolved air to float a foam froth that is mechanically skimmed from the surface. This froth is routed to Emulsion Tanks for additional treatment while the treated water is routed to the Holding Pond System.

The Emulsion Tanks receive a variety of emulsion types from the Inlet Skim Tanks, Surge Tanks, DAF units, residual tank bottom solids from the Condensate Sales Tanks and emulsions fluids that are not suitable for direct offload into the Inlet Skim Tanks. These emulsions are treated by heat or additional chemicals to provide additional separation and recovery of oil and water. Any residual oil recovered from processing these emulsions is routed back to the Condensate Sales Tanks while recovered water is pumped to the Field Treat facility Field Skim Tank. Solids remaining in the Emulsion Tanks are processed through a filter press and residual liquids from the filter press are routed back to the Emulsion Tanks. The final dry solids are treated at the on-site Landfarm or taken to a commercial facility.

Recovered oil is stored in Condensate Sales Tanks until measured, loaded onto trucks and sold. When necessary, accumulated water, sediment and solids will be transferred from the Condensate Sales Tanks to the Emulsion Tanks for additional treating and oil recovery.

A separate Field Treat facility located within the Parachute WMF provides additional surge capacity during times of high water production in the field. This water can be received by pipeline or by direct truck offload and will flow directly into a Field Skim Tank and will function identically to the Inlet Skim Tanks in the Front-End portion of the facility. Any recovered oil will be routed to a separate set of Field Condensate Tanks and recovered water will be routed through a set of Field Polishing Tanks for additional phase separation. Oil recovered in the Field Polishing Tanks will also route to the Field Condensate Tanks. Water will continue to flow from the Field Polishing Tanks and route directly into Grand Valley Pit # 1 (Pond-1). Recovered water will be held in Pond-1 and will be pumped as necessary to the Inlet Skim Tanks and processed through the Front-End treatment system. All water routed to Pond-1will be tracked by a flow meter located downstream of the Field Polishing Tanks.

Accumulated solids in the Field Skim Tank will also be routed through a cyclone to send recovered water back through the Field Skim Tank and remaining solids to a Field Sand Tank. Solids in the Field Sand Tank will be processed in the same manner as the Sand Tank in the Front-End treatment system.

Accumulated oil in the Field Condensate Tanks will be transferred to the Condensate Sales Tanks in the Front-End treatment system. Any emulsions or tank bottoms from the Field Polishing Tanks or Field Condensate Tanks will be transferred to the Emulsion Tanks in the Front-End treatment system for additional processing.

Pond-1 is a holding pond with a capacity of approximately 176,000 bbls and with a potential throughput of approximately 2,500,000 bbls per year. Pond-1 is intended to provide surge and holding capacity of partially treated water until it can be routed to the Front-End treatment system. It is equipped with a floating sealed covered to capture any vapors and route them to an enclosed combustor.

The Holding Pond System is a set of four holding ponds identified as North, South, Grand Valley Pit # 2 (Pond-2) and Grand Valley Pit # 3 (Pond-3) with a cumulative holding capacity of approximately 365,000 bbls and an operating throughput of up to 9,300,000 bbls per year. These ponds hold water that has been recovered and treated by the Front-End treatment system which includes the Inlet Skim Tanks, Surge Tanks and DAF units. Additionally, water in the Holding Pond System is augmented with nutrients and hydrocarbon consuming microbes to facilitate further reduction of any remaining dissolved hydrocarbon content. Although water in the Holding Pond System will be moved and recirculated between these four ponds as necessary, water generally routes from the DAF units to the North pond first and gravity feeds into the South pond while Pond-2 and Pond-3 generally recirculate independently. Aerators are utilized and water is recirculated to enhance biodegradation of dissolved hydrocarbons through increased oxygen content and nutrient distribution.

As necessary, excess water accumulated in the Holding Pond System will be transferred to Water Injection Tanks and disposed by pumping into deep well formations using a high pressure injection pump or water may be sent to a commercial disposal facility. If needed for

re-use in other field operations, water from the Holding Pond System can be pumped by pipeline or loaded and trucked off-site for re-use.

Enhanced water evaporation with a potential throughput of up to 500,000 bbls per year will also be utilized to dispose of excess water accumulated in the Holding Pond System. Evaporation will be conducted over Pond-2 and Pond-3. Circulation pumps will route the water from these ponds to a network of sprinklers which will spray the water into a fine mist to increase the surface area and in turn increase the evaporation rate. The sprinklers will be positioned such that the mist of water will project over these ponds and any water not evaporated will re-accumulate back into the ponds.

An on-site Landfarm consisting of five separate plots will be utilized to treat residual solid waste through biodegradation and volatilization of residual hydrocarbon content. The capacity of the Landfarm will be up to 3,000 tons per year.

Holding Ponds

Managing the volumes of field water is critical to efficient operations of WPX assets. To ensure sufficient water is on-hand for well completions or other operational re-use, daily accounting of the pond levels at the Parachute WMF will be compiled. All recovered water entering the Holding Pond System is monitored through flow meters and pond levels are tracked using level pressure transducers and transmitted to the facility's automation system. These operational data sources are used to monitor change in pond levels for overall facility accounting as well as to monitor for potential leaks in the individual ponds. In the event an unexpected change in pond level that cannot be accounted for in overall facility operational data, further investigation will be conducted to mitigate potential leakage.

Water entering the Holding Pond System (North, South, Pond-2 and Pond-3) must be treated through the Front-End treatment system including the Inlet Skim Tanks, Surge Tanks and DAF units. No fluids may enter the Holding Pond System that has not been treated.

A containment boom will be placed where water exits the DAF units and discharges into the North pond as an additional measure to capture any residual skim that may enter the ponds. The ponds will be monitored daily and any observed oil skim captured in this boom will be reported. A standby skim pump will be available to remove any skim that is observed.

Accumulated sediment in the ponds will be monitored quarterly by direct measurement at distributed points throughout the ponds. Should sediment accumulation be reported, mitigation will be performed to prevent excessive sediment build-up.

Pond-1 will have a sealed floating cover to capture and collect any vapor emissions. Vapors will exit Pond-1 via a hose that will direct the vapors to an enclosed combustor. Periodic precipitation will accumulate on the floating cover and will be pumped out through a network of drainage troughs which lead to level activated sump pumps. These pumps will pump the surface water into Pond-1 via a sealed opening.

Evaporation System

The enhanced evaporation system will be operated during favorable seasonal conditions to reduce the volume of accumulated water in the Holding Pond System. Evaporation will be conducted over Pond-2 and Pond-3. As necessary, measured volumes of water will be moved to these ponds in batches for disposal by evaporation. Circulation pumps will route the water from these ponds to a network of spray nozzles, sprinkler heads or other water dispersion devices to increase the overall water surface area and evaporation rate. These spray nozzles will be positioned over the ponds to capture the water spray that has settling velocity. Measurements will be recorded daily of the total amount of water evaporated. To prevent freeze damage, the evaporation system will not be operated during excessive cold conditions. The evaporation system will not be operated during times of high wind to prevent overspray to adjacent surfaces.

Landfarm

The Landfarm will consist of five separate plots designated for receiving and treating solid waste from facility and other E&P operations. Incoming material will be received initially into a landfarm plot designated for incoming material where it will be quantified and sampled prior to being worked into an active landfarm plot. Each landfarm plot will be managed independently and may be segregated and managed as sub-cells depending upon the rate of biodegradation and nutrient requirements. Additional augmentation of cultured microbes, nutrients, moisture and other amendments will be utilized to achieve optimum soil properties for enhanced biodegradation. Periodic tilling or turning of the solid waste will be performed to provide mixing, aeration and control moisture. Treated solid waste which has passed regulatory requirements for disposal will be utilized for roads, berms and fill within WPX's operating locations.

Security

The facility is authorized to receive only E&P waste from WPX operations. No unauthorized personnel are allowed at the Parachute WMF. A plant operator is on-site 24 hours per day to monitor the facility for any unauthorized activity. Signage is located at multiple points throughout the facility to direct contractors and truck drivers to proper unloading areas. The perimeter of the facility is fenced to prevent unauthorized access. This fence also serves as wildlife mitigation along with cattle guards across each ingress and egress point of the facility.

3.0 INSPECTION AND MAINTENANCE

Plant personnel will inspect the facility through the course of routine daily operations. Some specific checks will be performed more extensively according to the following schedule. A form for recording inspection data is included in Appendix A. Completed forms will be maintained within the facility's data management system which may include multiple databases, spreadsheets and log sheets. Except as otherwise noted, any issues identified in the inspections will be brought to the attention of WPX management and corrections or repairs will be scheduled promptly.

ITEM	FREQUENCY
Excessive Odors	Daily
Oil Accumulation on Storage Ponds	Daily
Pipe Leaks and Spills	Daily
Equipment Function	Daily
Liner and Pond Cover Condition	Daily
Liner integrity	Daily
Evaporation Operation	Daily
Fence Condition	Monthly
Safety Equipment Deployment	Monthly

- Stormwater inspections will be conducted in accordance with the Grand Valley Field Stormwater Plan. Permit #CR038544.
- SPCC inspections will be conducted in accordance with the Parachute Centralized E&P Waste Management FRP.
- Storage ponds will be inspected for oil skim accumulation. If a skim is observed within the containment boom, the installed skim pump will be operated to remove the skim. If a skim exists outside the boom, a vacuum truck will be used to remove any skim.
- Equipment function including automation controls and monitoring will be checked daily.
- The Evaporation system operation will be monitored for wind conditions that could cause potential overspray. The system will be shut down whenever wind conditions are not favorable or in the event overspray is observed.

4.0 RECORD KEEPING

The following facility operational data will be recorded and maintained within the facility's data management system which may include multiple databases, spreadsheets and log sheets. An example of such log sheets is included in Appendix A. This data will be used to monitor facility performance and to ensure proper operation.

DATA	FREQUENCY
Total Daily Volume In	Daily
Total Daily Volume Out	Daily
Total Daily Volume Injected By Well	Daily
Storage Pond Levels	Daily
Total Enhanced Evaporation	Daily

Critical to pond leak detection, evaporation monitoring and throughput calculations are the flow meters and level indicators throughout the facility. The following specific flow meters and level indicators track the facility daily operating parameters and are utilized in the facility's data management system to track the pond system.

DEVICE ID	PURPOSE
FIT-300	Meter tracking total throughput through DAF 300, DAF 310
FIT-310	and flows into North pond.
FIT-160	Flows from pipeline into Inlet Skim Tanks
FIT-106	Flows from North or South ponds for recycle or truck loadout for reuse
FIT-900	Flows into Field-Treat system into Field Skim Tank
FIT-905	Flows into Pond-1 from the Field-Treat system or pipeline into Pond-1
FIT-691	Flows from Pond-1 recirculate, diversion back to Field-Treat
FIT-691A	system, flows out of Pond-1 to Front-End
FIT-691B	
FIT-692	Flows from Pond-2 recirculate, diversion to Pond-2 or Pond-3,
FIT-692A	bypass from Pond-3 to other ponds
LIT-122	Level indicator monitoring North pond
LIT-121	Level indicator monitoring South pond
LIT-691	Level indicator monitoring Pond-1
LIT-692	Level indicator monitoring Pond-2
LIT-693	Level indicator monitoring Pond-3

5.0 SAFETY PROCEDURES

Emergency Response Plan

In the event of an immediate threat to human health, the environment, and/or property please refer to the *WPX Energy Emergency Response One Plan, Effective 02-15-12.* The Emergency Response Plan is maintained at the Parachute office.

Hazard Description

Special precautions must be taken when working near the storage ponds. The sloping linear material is challenging to walk on when dry and difficult to walk on when wet, frosted or covered with snow. Walking on the sloped area is certain to result in immersion in the ponds under these conditions. If snow is present at the pond perimeter, it is impossible to determine if the area to be traversed is underlain by soil or linear material.

Facility Safety Practices

The following special safety precautions must be followed for the facility:

- All personnel who have access to the facility, including contract water haulers, must be briefed on the safety hazards
- A sign providing a description of hazards must be maintained at the first point of access to the upper storage pond
- Signs shall be posted at 150' intervals, "Danger Keep Out- Drowning Hazard"
- Ring buoys with an adequate length of rope shall be stationed at two easily accessible points on the perimeter of each pond
- Buddy system when on plastic

Storage Pond Access Requirements

Points requiring regular access, such as the suction line area or skimming points shall be equipped with the following additional safety measures:

- An anchored rope ladder that extends at least three feet below the liquid surface
- A ring buoy with an adequate length of rope to rescue an immersed party without entering the sloped area of the pond
- An anchored support role to help maintain balance and footing while walking the pond slope and
- An approved personal floatation device (PFD)
- A sign stating "Danger – Authorized Personnel Only – Keep Out"

Only access points so equipped may be used to access the ponds for normal maintenance activities. Only authorized personnel, trained in the hazards and proper work practices shall be allowed to access the ponds.

The ponds may not be accessed if the liner is wet or in the winter season without employing the buddy system. One person must remain on the pond perimeter, in direct view of the individual working in the pond. A PFD must be worn by both individuals accessing the pond. If possible, pond maintenance activities should be avoided if the liner is wet, or snow and frost covered.

Personal Protective Equipment

Protective equipment and procedures described by WPX Hazard Communication program and Personal Protective Equipment program shall be followed when contact with produced water or condensate is possible.

6.0 Appendix A

Pond Inspection Form

Parachute Water Management Facility

Pond Inspection Report

Date: _____

Time: _____

Operator: _____

Average WS Elevation: _____

Mark all that apply ☒

Daily - Adverse Weather Conditions				
Extreme heat	☐	High		F°
Extreme cold	☐	Low		F°
High winds	☐	Direction		
		Speed		MPH
Rain	☐	Rainfall		Inches
Other	☐			

Montly -Inspection	YES	NO
Damaged Fence	☐	☐
Damaged safety equipment	☐	☐
(Other)	☐	☐
(Other)	☐	☐
(Other)	☐	☐
(Other)	☐	☐

Daily - Reservoir Perimeter Check	YES	NO
Damage to perimeter fencing or gates	☐	☐
Debris on pond cover	☐	☐
Visible damage to pond cover	☐	☐
Rainwater removal system malfunction	☐	☐
Ponded water	☐	☐
Visible damage at structures	☐	☐
Excessive odors	☐	☐
Evap. mister overspray observed	☐	☐
(Other)	☐	☐
(Other)	☐	☐
(Other)	☐	☐
(Other)	☐	☐

Daily - Detailed Inspection	YES	NO
Unsecure suction lines	☐	☐
Debris on cover or in troughs	☐	☐
Damage to rainwater removal system	☐	☐
Areas of ponded surface water	☐	☐
Standing water in troughs	☐	☐
Leakage at previous repairs	☐	☐
Membrane damage/pinholes/abrasions	☐	☐
Seam failure	☐	☐
Excessive air pockets under cover	☐	☐
Damage or wear at structures	☐	☐
Damage to vents or hatches	☐	☐
Oil accumulation	☐	☐

Provide details for those items maked "yes" above

_____

_____

_____

_____

Complete the table for each required repair

Required Repair	Date Reported to O&M	Repair Assigned To:	Date Assigned	Completed Date

Pond Flow Tracking

Date	North Level	South Level	Pond 1 Level	Pond 2 Level	Pond 3 Level	DAF 300	DAF 310	North / South Recycle	Pipeline In Flows	Field Skim Tank Inlet	Pond 1 Inlet	Pond 1 Recycle	Pond 1 To Field Skim Tank	Pond 1 To Front End	Pond 2 Recycle/Transfer to/from Pond 3 Through 4"	Pond 2 To North Pond/Frac Pipeline/Optional to Pond 3 through 8"
	LIT-122	LIT-121	LIT-691	LIT-692	LIT-693	FIT-300	FIT-310	FIT-106	FIT-160	FIT-900	FIT-905	FIT-691	FIT-691A	FIT-691B	FIT-692	FIT-692A

Attachment E

Hydrostatic Test Results

Hydrostatic Pit Testing
Data Collection & Computation Form

Fox Engineering Solutions

Pit Owner:	WPX Energy Rocky Mountain, LLC
Pit Name:	Parachute WTF Pond 1
COGCC Facility No.	426954
Pit Location:	NW1/4 NW 1/4 S1, T7S, R96W, 6th P.M.; Garfield County, CO Latitude: N 39.4714° Longitude: W108.0662° NAD83
Reported Liner:	Two- 60mil Polypropylene liners
Approximate Elevation:	5540 ft. MSL
Test Conducted By:	David Fox, Fox Engineering Solutions

Test Initiation:

Date: February 13, 2012
Time: 9:00 AM
Total Duration: 72 hours

Test Termination:

Date: February 16, 2012
Time: 9:00 AM

	Length	Width	Area		Comments
Tributary Pit Liner Surface Area (ft^2):	-	-	105,116	$ft.^2$	**Surveyed by Bookcliff Survey**
Initial Pit Water Surface Area:	-	-	82,396	$ft.^2$	**Surveyed by Bookcliff Survey**
Final Pit Water Surface Area:	-	-	82,396	$ft.^2$	**Surveyed by Bookcliff Survey**
Average Pit Surface Area:			82396	$ft.^2$	

Initial Pit Fluid Level: **5535.053 ft.**
Final Pit Fluid Level: **5535.049 ft**
Difference **-0.004 ft or**
Est. Fluid Depth: **6.4 ft.** (from telemetry sensor) **-0.048 inches**
(+ indicates fluid level increase)

Evaporation Pan Installed: No **Location:** **NOAA Reported February Average Evaporation Rate per 3-days** **0.150 inches**
Winter conditions. Precipitation (water) covered an estimated 95% - 98% of the pit cover area at beginning of test.

Rain Gauge Installed: Yes **Location:** East side of pit **Recorded Precipitation:** **0.025 inches**
Equiv. 72-Hour Precip. Inflow: **0.031 inches**

Other Inflow/Outflow: **Water Equivalent Inflow:** **0.074 inches**
(Melting Snow on Sideslopes. Measured water equivalent = 0.27") ((105,116 - 82,396) x 0.27"/12 / 82,396 x 12)

Calculated Fluid Level Change in Inches:
(+ indicates fluid level increase) **(Precipitation - Evaporation + Inflows - Outflows)** **-0.045 inches**

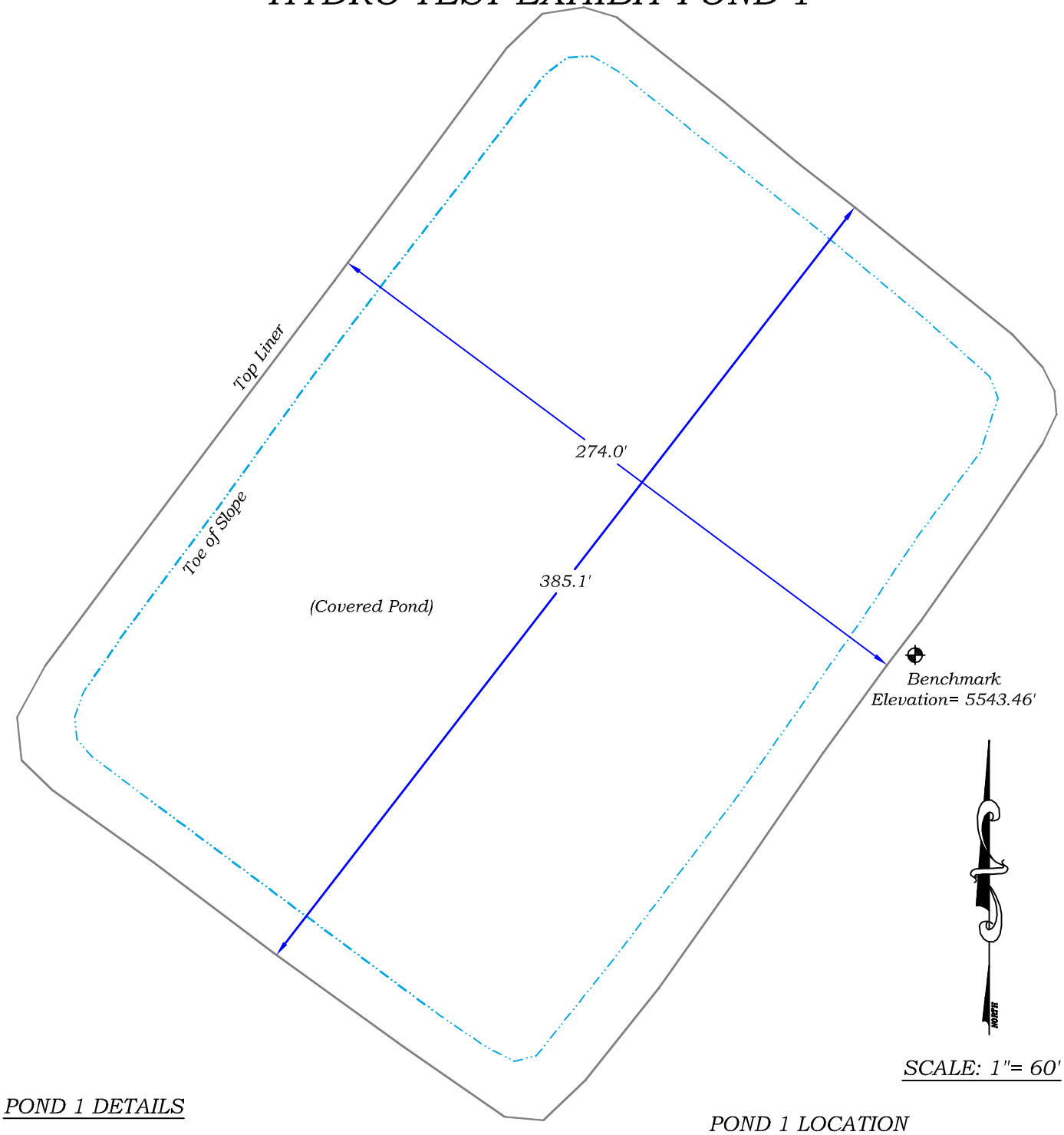
Measure Change in Inches: **-0.048 inches**
(+ indicates fluid level increase)
Difference between Calculated and Measured Pit Fluid Level: **0.003 inches**

Summary: No observed loss of liner integrity. Measured fluid level decrease correlated with evaporation and precipitation.
Weather: Variable weather with temps ranging from 20° to 45°. Rain/snow/sun during test.

Liner and Pit Condition: Produced water fluid level at 6.4 ft depth as provided by sensor telemetry.
The fluid surface of the pit is completely covered with a synthetic liner. No observations of primary liner were possible.
Precipitation, in the form of water, covered an estimated 95% - 98% of synthetic liner cover at beginning of test.

Comments: Bookcliff Survey utilized a Trimble Total Station for required area and elevation measurements.
Survey measurements taken at two observation ports on cover liner.
Williams staff indicated that no fluids were transferred from or to the pit during the duration of the test.

GRAND VALLEY WATER TREATMENT FACILITY
HYDRO-TEST EXHIBIT POND 1



SCALE: 1"= 60'

POND 1 DETAILS

TEST @ 9:00A.M.

TOP WATER ELEV. (FEBRUARY 13, 2012)= 5535.053'
TOP WATER ELEV. (FEBRUARY 16, 2012)= 5535.049'

TOP OF LINER SURFACE AREA =	105,116 sq. ft.
TOP WATER SURFACE AREA (approx. @ toe of slope)=	82,396 sq. ft.
TRIBUTARY AREA =	22,720 sq. ft.

POND 1 LOCATION

NW1/4 SECTION 1, NE1/4 SECTION 2,
TOWNSHIP 7 SOUTH,
RANGE 96 WEST OF THE SIXTH P.M.

COSP NAD83 CENTRAL ZONE
LATITUDE: 39.471466°
LONGITUDE: -108.066336°

136 East Third Street
Rifle, Colorado 81650
Ph. (970) 625-1330
Fax (970) 625-2773
BOOKCLIFF Survey Services, Inc.

Fox Engineering Solutions
670 Canyon Creek Dr.
Grand Junction, CO 81503

Grand Valley Water
Treatment Facility Pond 1

DATE: 2/16/12
SHEET: 1 OF 1
PROJECT: HYDROTEST
DFT: SRB

K:\2012 WILLIAMS VALLEY\HYDROTEST\dwg\HAYES.dwg, 2/16/2012 11:21:50 AM

Hydrostatic Testing Procedures for COGCC Earthen Pits

Vers. 6.0 12-15-11 ©

Fox Engineering Solutions, Inc

The purpose for hydrostatic testing earthen pits is to comply with COGCC approval conditions for verifying the fluid holding integrity of the pit lining system. These procedures are specific to existing or active earthen pits holding oil and gas related fluids including, but not limited to, produced water. During testing, the pit shall have fluid level as high as practical, without encroaching into the 2 ft. freeboard, and the test shall be conducted for a minimum of 72 hours, if practical. Visible portions of the liner, including the anchor trench and seams, shall be inspected for defects. The test shall be scheduled and coordinated with personnel to ensure that oil and gas activities do not interfere with the test. Testing procedures may be subject to changes as dictated by field and climatic factors. All personnel involved with testing, while onsite, shall comply with their respective EH&S requirements.

- If practical, a sign shall be placed in a conspicuous location during the test stating “Hydrostatic testing in Progress, Pit Closed to All Water Hauling Activities”. Contact information shall also be placed on the sign.

- A semi-permanent datum elevation point shall be established at the pit location. The surface area of the water surface and the surface area of the liner area, tributary to the pit shall be measured. The date and time of each measurement shall be documented.

- The pit fluid level; fluid surface area; and the lined surface area, tributary to the pit, shall be measured and recorded at the beginning of the test. The pit fluid level shall be measured again at the end of the test. A survey grade total station shall be utilized for accuracy to capture this information. The date and time of measurements shall be documented.

- A 4” diameter official rain gauge with funnel inlet shall be installed at the pit site. Precipitation shall be recorded for the duration of the hydrostatic test.

- During ice-free periods, pan evaporation shall be measured during the duration of the test following the procedures established by the National Weather Service – NOAA in the document entitled “National Weather Service - Observing Handbook No. 2, dated July 1989. A Class A evaporation pan shall be placed at the site, or as near as practical, with evaporation measured per established procedures. During ice-over periods at the pit, evaporation is assumed negligible and evaporation measurements will not be taken.

- For the duration of the test, all inflows and outflows, such as truck and piped transfers, shall cease. If the cessation of inflows and outflows is not practical, all pit inflows and outflows shall be accurately metered and documented during the test. 24-hour surveillance monitoring may be warranted.

- If no precipitation has occurred during the test, compare the change in the pit fluid level with the recorded pan evaporation. During ice-over periods, compare the pit levels taken at the start and end of the tests.

- If precipitation has occurred during the test, precipitation falling onto tributary portions of the liner, outside of the fluid surface area, may be added as an inflow to the pit and converted into inches of depth over the fluid surface area. During ice-over and snow conditions, precipitation inflow from tributary portions of the liner may be estimated from snow depth and corresponding water equivalent comparisons at the start and termination of the test. Other factors may also be utilized.

- The calculated change in pit level during the test is: $\Delta L = P + I - O - E$ (all measurements converted to inches)

  Where: ΔL = Change in pit fluid level; P = Precipitation Inflow; E = Evaporation; I = Measured Inflows; O = Measured Outflows

- The measured change in the pit fluid level shall be compared to the calculated change, utilizing precipitation and evaporation data, in the pit fluid level during the test duration. The test procedures and results will be reviewed and analyzed for discrepancies. If the test results indicate integrity issues with the lining system, the test will be repeated.

Fox Engineering Solutions, Inc.
670 Canyon Creek Drive
Grand Junction, CO 81507-9594

Cell (970) 250-5505
Email: coloradofox@bresnan.net

Attachment F

Hydrologic Evaluation

WATER RESOURCE CONSULTANTS, LLC

April 24, 2010

Phil Vaughan
Phil Vaughan Construction Management, Inc.
1038 CR 323
Rifle, CO 81650

RE: Williams RMT
Parachute Water Handling Facility, Garfield County, Colorado
Effect on Groundwater and Aquifer Recharge Areas

Phil,

This letter report addresses the impacts of three new water storage and evaporation ponds constructed in 2009 at the Parachute Water Handling Facility (Fig. 1) on groundwater quantity and quality.

REGULATORY BACKGROUND

This review has been prepared as a portion of a Limited Impact Review per Article 4-502 of the Garfield County, Colorado 2008 Unified Land Use Resolution. Specifically, the impact analysis required by Article 4-502(E)7 requires:

> *7. **Effect on Groundwater and Aquifer Recharge Areas.** Evaluation of the relationship of the subject parcel to floodplains, the nature of soils and subsoils and their ability to adequately support waste disposal, the slope of the land, the effect of sewage effluents, and the pollution of surface runoff, stream flow and groundwater.*

The subject of this report is only the effect on groundwater and aquifer recharge areas. Other subjects required above are contained elsewhere in this Limited Impact Review.

SITE SETTING

Topographic Setting

The Parachute water handling facility is located 1.5 miles northwest of Parachute, Colorado (Fig. 1). It is located on a dry outcrop of the Wasatch formation approximately 250 feet above and ½ mile from Parachute Creek, and 400 feet above and 1-¾ miles from Colorado River. Two intermittent streams skirt the Wasatch outcrop and the facility, but are over 120 feet lower than site and have no hydrologic impact on the site. Figure 2 shows the location of the three ponds in relation to nearby intermittent creeks.

244 Hutton Ave., Rifle, CO 81650 PH / Fax (970) 625-5433 pcurrier@wrc-llc.com

Aquifers

The site geology and geologic hazards of the site are summarized in a report included elsewhere in this Limited Impact Review [1].

From a groundwater and aquifer perspective, the site is underlain by 15 to 30 feet of clayey colluvium soils below which is thick Wasatch bedrock composed of low permeability interbedded shales, mudstones, siltstones and clays. The colluvium has a high clay content which greatly impedes movement of water. The Wasatch formation is typically several thousand feet thick and is known for being a poor source of water for domestic and irrigation water. Wells that have been completed in the formation are often brackish and are usually low volume and of little domestic or commercial use. The Wasatch formation is effectively an aquitard that inhibits the travel of water from higher to lower phreatic elevations. Underlying the Wasatch formation is the extensive Mesa Verde formation, from which most oil and gas extraction in the Piceance Basin takes place.

It should be noted that the Colorado Division of Water Resources[2] shows a "Piceance Basin" bedrock aquifer exists. This aquifer actually has three members, none of which involve the very thick Wasatch formation. The hydrologic system in Tertiary rocks of the Piceance Basin consists of the upper and lower Piceance Basin aquifers separated from each other and from underlying aquifers in Mesozoic rocks by confining units. Confining units are the Mahogany (oil shale bearing) confining unit, which separates the upper and lower Piceance Basin aquifers, and a basal confining unit, the Wasatch formation, which separates the lower Piceance Basin aquifer from the underlying Mesaverde aquifer. The upper aquifers are truncated laterally by topography, and are bounded in general by the Colorado River on the South and the White River on the North.[3] The lower Mesa Verde aquifer basin stretches from Gunnison in the southeast to near Craig on the northwest. This Mesa Verde aquifer is seldom used for water production for domestic and irrigation purposes. However, low quality water from this formation is often produced in conjunction with natural gas development.

Water well records in the area[2] indicate that local water wells produce from pediments and alluviums associated with the Parachute Creek and Colorado River floodplains. Most wells are fairly shallow (less than 100 feet) and are low producing wells used for domestic purposes (CDSS et al).

Geotechnical Boreholes

Five boreholes were drilled on the site surrounding the ponds in February of 2010 to depths of 25 to 50 feet. All holes were dry at the time of drilling and have remained dry. Soils were moist at the time of drilling, but not saturated. Test holes TH-1, TH-2 and TH-3 were completed in the underlying Wasatch bedrock. No evidence of a groundwater table was encountered underneath or adjacent to the ponds.

---

[1] *Geologic Evaluation and Geotechnical Investigation*, CTL | Thompson, Inc., March, 17 2010, Project No. GS05448-115.

[2] *Colorado's Decision Support Systems,* http://cdss.state.co.us

[3] *Geohydrology of Tertiary Rocks in the Upper Colorado River Basin in Colorado, Utah, and Wyoming, Excluding the San Juan Basin – Regional Aquifer-System Analysis;* Glover, Kent C., Naftz, David L., and Martin, Lawrence J., USGS Water Resources Investigation Report 96-4105, 1998. See aquifer maps, pgs. 9 and 55 in particular.

Water Quality

The water placed in the holding and evaporation ponds is drill production water that is stripped of virtually all hydrocarbons. Thus the water is primarily water that is too high in total dissolved solids to be of domestic or irrigation value, but still has value as drilling water. Appendix A contains a description of the facilities and the operating manual for the water handling facility. The Operating Manual describes how hydrocarbons are stripped from the water.

POND CONSTRUCTION

The ponds were designed and constructed with the intention of being leak proof, per COGCC rules. All three ponds are lined with a clay subgrade and a 60 mil HDPE liner. Review of QA/QC records for the ponds[4] show that industry standards were followed for the layout, welding, and testing of the HDPE liner.

The subgrade is a compacted clay liner, constructed with onsite clayey materials. Constant head permeability tests on laboratory samples indicate a permeability range of 4.2×10^{-8} cm/sec to 1.8×10^{-7} cm/sec [5]. This represents a reasonable permeability range for clayey subgrade materials. Because of variances between laboratory tests and field conditions, clay liners in the field often have a permeability that is at least an order of magnitude higher than under optimal conditions in the laboratory. Thus, it is probable that the underlying liner has an effective permeability in the range of 1×10^{-6} cm/sec to 1×10^{-7} cm/sec. Expressed in laymen's terms, this provides a virtually watertight seal against potential leakage from the ponds. However, the clay liner is a *secondary* defense against leakage from the ponds, and effectively serves as a backup, or redundant liner. The primary defense to leakage is the HDPE liner itself.

HDPE liners are an effective means of providing a water tight liner. HDPE is UV protected and is extremely chemically resistant, and has been proven for nearly 30 years to be the liner of choice due to its durability and chemical resistance. The seams are heat welded together at high temperatures. Historically, the lining industry has discovered that excellent installations require daily QA/QC testing to confirm the adequacy of welding. A review of the daily inspection reports shows a minimum of two test coupons were pulled per work day. All coupon tests passed. Also, every seam was air tested. Air testing is a non-destructive technique used to verify the continuity of welded seams. It is very effective at finding spot locations where a seam may not have adequately bonded together. All seams passed inspection. Additionally, 60 mil HDPE is, from a welding perspective, much easier to work with than 30 or 40 mil liner. The additional thickness lends itself to better welding, with fewer burn-throughs which in turn requires less patching, and more even welding temperatures. Also, thicker membranes have fewer issues with brittle welds due to over heating of the material during welding.

The combination of the primary HDPE liner and the secondary clay liner provides a virtually water tight system. While HDPE can leak through undetected pinholes, the potential for such is virtually nil. If pinholes were undetected, pinhole leakage at shallow water depths (< 20 ± feet) is a matter

[4] *Daily Installation Reports, May 29 – June 16, 2009,* Clearwater Construction (aka Colorado Lining). Documents provided by Williams RMT.

[5] *Lambert and Associates, Project No. G09032MT,* May 13, 2009. See "Soils" section of Appendix A.

of no more than a few gallons per day, which would easily be constrained by the clay subgrade liner.

CONCLUSIONS

The potential for aquifer contamination from pond leakage is virtually non-existent. This is for a host of reasons:

- Physiographic setting – clayey, low permeability subsoils, with low permeability bedrock thousands of feet thick underneath, and no shallow aquifers underneath the ponds.
- Remote location – over one-half mile from the alluvial aquifer of Parachute Creek, and 1-3/4 miles from the alluvial aquifer of the Colorado River.
- Clayey soils between the ponds and Parachute Creek – it would take a significant amount of seepage, let alone time, for any seepage to make its way to Parachute Creek.
- Lined ponds – all three ponds are lined with 60 mil HDPE liners, with a clay subgrade that acts as a secondary, redundant liner

Thus I conclude that the ponds, as constructed and operated, will have no material impact on aquifers in the region.

Respectfully submitted,

WATER RESOURCE CONSULTANTS, LLC

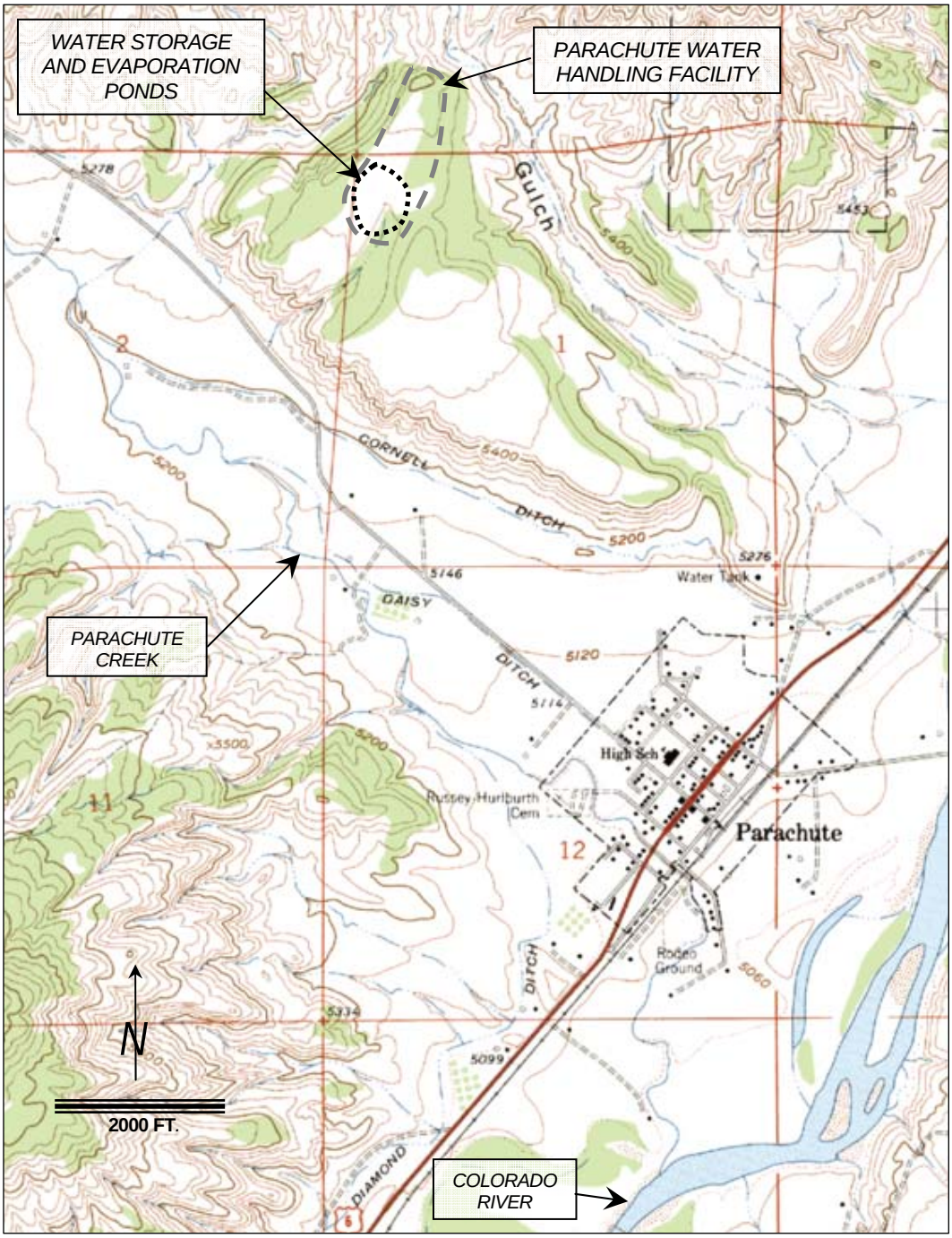
Paul C. Currier, P.E.
PCC/pcc
/ 431-1.0 Aquifer Evaluation.doc

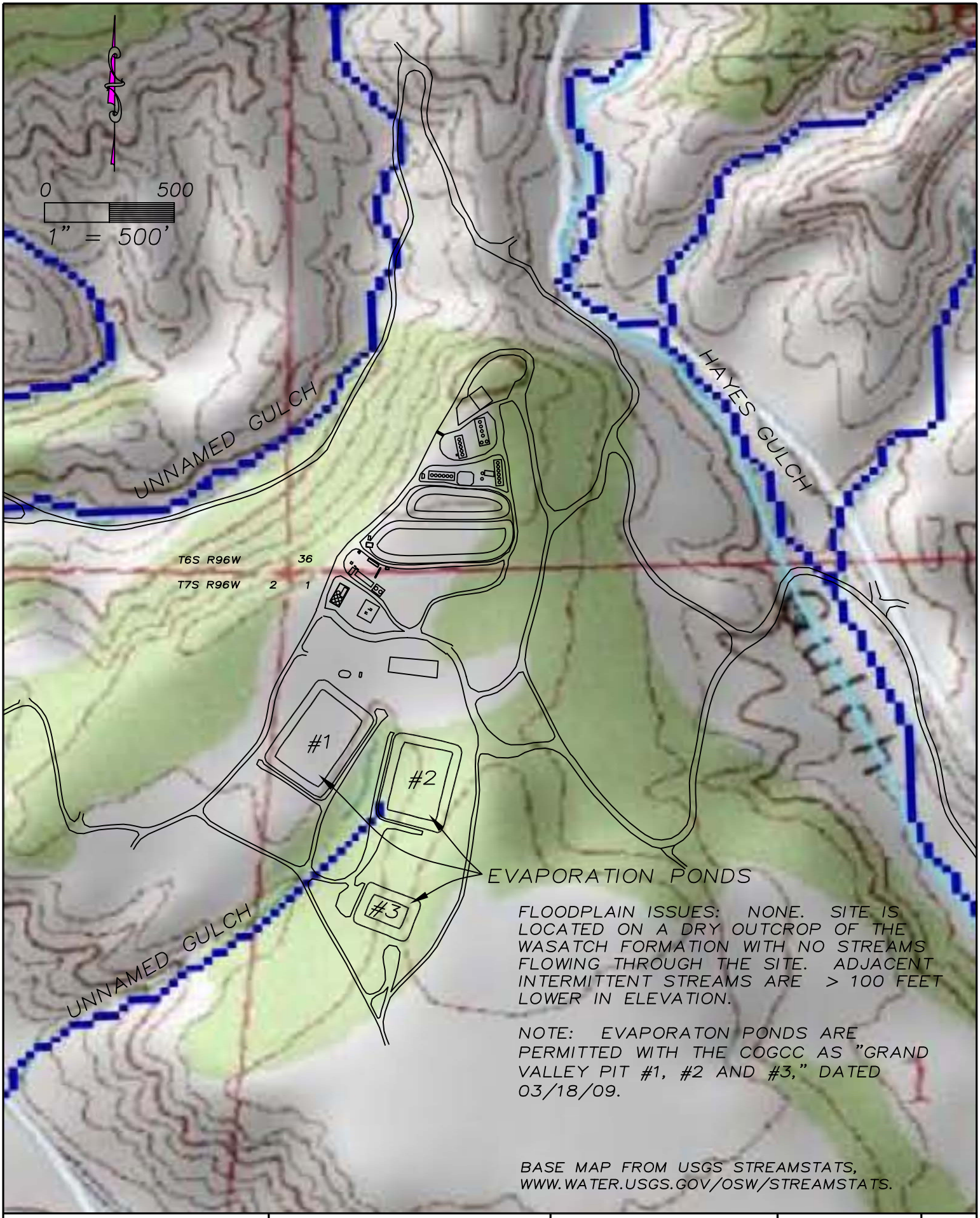
Enclosures:

Figure 1 - Parachute Water Handling Facility, General Location Map
Figure 2 - Parachute Water Handling Facility, Site Plan
Appendix A - Facility Design & Operating Manual (2009)
Appendix B - QA/QC Records, 2009 Pond Construction

FIGURE 1
GENERAL LOCATION MAP

Williams Production R.M.T.
Parachute Colorado Water Handling Facility





FLOODPLAIN ISSUES: NONE. SITE IS LOCATED ON A DRY OUTCROP OF THE WASATCH FORMATION WITH NO STREAMS FLOWING THROUGH THE SITE. ADJACENT INTERMITTENT STREAMS ARE > 100 FEET LOWER IN ELEVATION.

NOTE: EVAPORATON PONDS ARE PERMITTED WITH THE COGCC AS "GRAND VALLEY PIT #1, #2 AND #3," DATED 03/18/09.

BASE MAP FROM USGS STREAMSTATS, WWW.WATER.USGS.GOV/OSW/STREAMSTATS.

WATER RESOURCE CONSULTANTS, LLC
244 Hutton Ave., Rifle, CO 81650
(970) 625-5433 WWW.WRC-LLC.COM

WILLIAMS PRODUCTION R.M.T.
PARACHUTE, COLORADO
WATER HANDLING FACILITY

SITE PLAN

DATE : 21-APR-10	FIG 2
FILE : 431-1.0	
DWG : 431 - Site Plan	
BY : PCC	
CHKD : PCC	REV: 0

WATER RESOURCE CONSULTANTS, LLC

April 24, 2010

Phil Vaughan
Phil Vaughan Construction Management, Inc.
1038 CR 323
Rifle, CO 81650

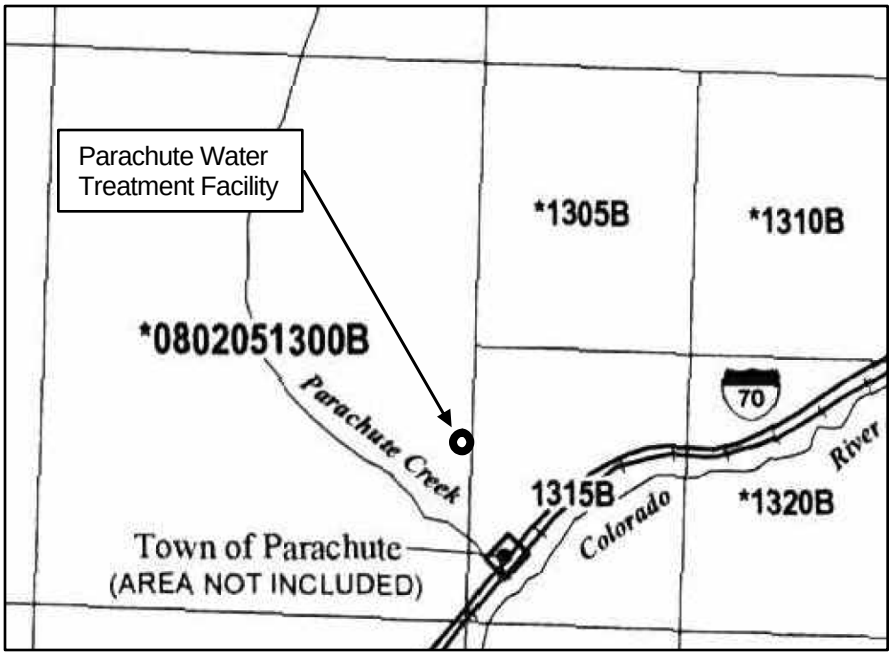
RE: Williams RMT
Parachute Water Handling Facility, Garfield County
Floodplain Evaluation

Phil,

This letter serves as an evaluation of floodplain issues regarding the Parachute Water Handling Facility. In summary, the facility is not located in a floodplain, and thus meets Garfield County's Zoning Resolution of 2008 sections 4-503 and 7-701 regarding standards within a Floodplain Overlay District.

Figure 1 shows the location of the facility, as plotted on FEMA's index map for floodplain maps. The asterick in front of the panel number indicates that these areas have not been mapped for floodplain hazards by FEMA.

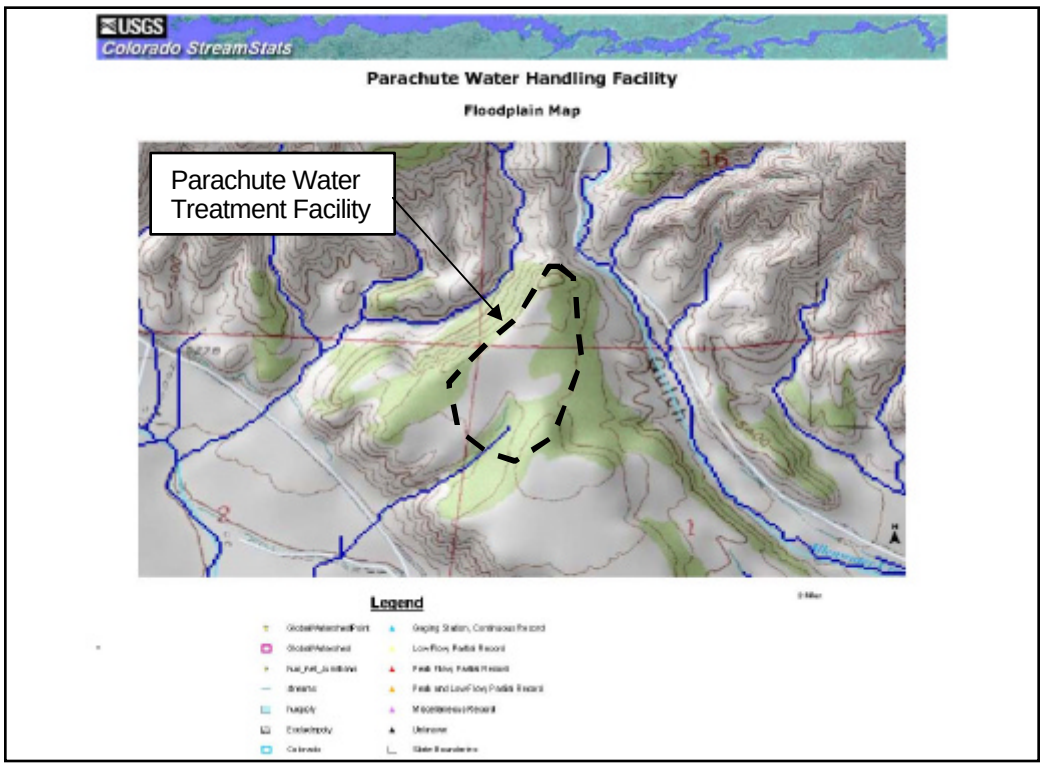
FIGURE 1
FEMA Floodplain Map for
Parachute Water Handling Facility



244 Hutton Ave., Rifle, CO 81650 PH / Fax (970) 625-5433 pcurrier@wrc-llc.com

Figure 2 shows the location of the facility in relation to nearby intermittent streams. Hayes Gulch and an unnamed gulch flow around the site, but are more than 100 feet lower than the facility. Neither stream impacts the site, as the site is located on the top of a dry outcrop of the Wasatch Formation.

FIGURE 2
Parachute Water Handling Facility
Facility Location in Relation to Adjacent Streams



Respectfully submitted,

WATER RESOURCE CONSULTANTS, LLC

COLORADO REGISTERED
PAUL C. CURRIER
24753
PROFESSIONAL ENGINEER

Paul C. Currier, P.E.
PCC/pcc
/ 431-1.7 Floodplain Evaluation.doc

Attachment G

Geologic Evaluation

March 17, 2010

Phil Vaughan Construction Management, Inc.
1038 County Road 323
Rifle, CO 81650

Attention: Mr. Phil Vaughan

Subject: Geologic Evaluation and Geotechnical Investigation
Williams-Parachute
Water Handling Facility
Garfield County, Colorado
Project No. GS05448-115

This report provides the results of our geologic evaluations and geotechnical investigation at the Williams-Parachute Water Handling Facility in Garfield County, Colorado. The following sections discuss the site geology, geologic hazards and characterizes the subsurface conditions. We provide our opinion of the affects of the geologic and geotechnical conditions on the facility. A vicinity map is shown on Figure 1.

Site Geology and Geologic Hazards

Site geology and geologic hazards on this parcel were evaluated by David A. Glater, P.E., C.P.G., using field reconnaissance on February 24, 2010 and a review of available literature. The ground surface at the time of our visit was covered with snow, with the exception of south-facing slopes. Literature references are cited at the end of this section.

Mapping by the USGS indicates bedrock materials beneath the Williams – Parachute Water Handling Facility is the Wasatch Formation of Eocene and Paleocene (early Tertiary) time. The continental sedimentary deposit is comprised of bedded claystone shale, siltstone and sandstone. Outcrops of Wasatch Formation shale and sandstone are present on the steep slopes along County Road 215 below the site. The slightly younger Green River Formation caps the mesas and ridges north of the site. The Green River Formation contains bedded shale, sandstone and marlstone.

The topography of the site was formed by Hayes Gulch, Parachute Creek and the Colorado River that have downcut through the shales over the past

million years or so. The project area lies on a pediment planed by ancient erosive flows from Hayes Gulch. Many thousands of years ago, Hayes Gulch deposited debris and mudflows that have accumulated as a thick colluvial soil consisting of shale and sandstone fragments in a plastic clay matrix. At some point, modern flows in Hayes Gulch were captured in defined drainages that formed east and west of the site. After the area was cut off from further deposition, the current topography formed as drainages and ridge divides on the broad, southwest-trending mesa. We understand significant cut and fill grading occurred over the past several years at the Water Handling Facility, particularly below the abandoned original ponds. Cuts and fills of up to about 25 feet occurred.

No bedrock outcrops were observed on the east side of the tributary drainage that bisects the project. The cuts above Produced Water Ponds 2 and 3 had been dressed with soil or were covered with snow, preventing determination of whether shallow bedrock exists on the east hillside. Our borings encountered man-made fill and colluvium soils in all borings. The natural soils and fill constructed with these soils were difficult to discern between. We found sandstone and claystone bedrock below the fill/natural soils in three borings (TH-1, TH-2 and TH-3) at depths of 18, 32 and 25 feet, respectively. Sandstone beds outcrop at the top and sides of the ridge that is south of Produced Water Pond 1. Regional dips appear to be less than 5 degrees.

We prepared a Geologic Map, Figure 2. Contacts between units are estimated due to snow cover. Mapped units include, in order of increasing age:

- Af – Man-placed fill and areas disturbed by grading.
- Qc – Colluvium, shale and sandstone fragments in a clay matrix with scattered cobbles and boulders. Overlies Wasatch Formation.
- Two – Wasatch Formation shale, siltstone and sandstone with little soil cover.

Geologic hazards typical in Colorado are described in Reference 3. Brief reconnaissance found no evidence of avalanches, landslides, rockfalls, unstable slopes or ground subsidence on the Water Handling Facility site. Steep slopes are present in cuts made for Ponds 2 and 3, at an overall inclination of about 2H:1V. These slopes should be globally stable if dry. Our borings imply ground water is deep. Natural slopes near the ponds are less steep and no evidence of instability was noted. In general, we recommend avoidance of slopes in excess of 3H:1V (33%) for development or construction, although careful engineering design may allow construction on steeper slopes, particularly in bedrock areas. Site soils should be considered to be somewhat susceptible to erosion, but not unusually so. The cut slopes above the ponds and natural steep slopes will have higher erosion rates. Revegetation, drainage capture or erosion control methods can reduce potential for soil loss. Potential for flooding and drainage analysis should be determined by the Civil Engineer. We saw no evidence of geologically recent

flooding. Regional issues of expansive soils and bedrock, seismicity and radioactivity are discussed below.

Expansive soils and bedrock are present at this site. The presence of expansive soils and bedrock, collectively referred to as expansive or swelling soils, constitutes a geologic hazard. There is risk that ground heave could damage slabs-on-grade and foundations. The risks associated with swelling soils can be mitigated but not eliminated by careful design, construction and maintenance procedures. The type of building construction associated with the water production facility is generally not adversely affected by the amount of movement related to swelling soils. Expansive soils as a geologic hazard are judged as a low risk at this site.

The soil and bedrock units are not expected to respond unusually to seismic activity. Liquifaction potential is considered nil. Where bedrock is within about 15 feet of the surface, sites can be considered to be Site Class C. Sites with thicker deposits of clay soil will likely be Site Class D. Horizontal Peak Ground Acceleration (PGA) for this site is 0.08g, with about a 1,000 year return period. Horizontal response spectral acceleration for 0.2 sec. period (Ss) can be taken as 0.17g and for 1 sec. period (Sl), 0.04g. Only minor damage to relatively new, properly designed and built structures would be expected.

Due to the fact that the property was covered with snow, we could not perform a background radiation screening at the time of this writing. However, we have performed several background radiation screenings in the vicinity of the Williams-Parachute Water Handling Facility. Based upon the historic use of the property, we anticipate radiation readings on the order of 0 to 10 microroentgens per hour (normal background radiation). When the snow has melted, likely in April, we will perform a background radiation screening of the property using a Ludlum Instruments, Inc. Model 19 Micro-R-Meter.

Investigation

We drilled five exploratory borings at the approximate locations shown on Figure 3. The borings were advanced to depths of 25 to 53 feet using 4-inch diameter, continuous-flight solid-stem auger and a track-mounted drill rig. Our laboratory/field manager observed drilling, logged the soils and bedrock encountered in the borings, and obtained samples. Graphical logs of the borings, including results of field penetration resistance tests are presented on the Summary Logs of Exploratory Borings on Figures 4 and 5. The borings were constructed as open piezometers to allow future measurements to water. A detail of the piezometer installation is shown on Figure 6.

Soils at the site consisted of man-placed fill from grading operations and natural colluvium. Fills were constructed with the natural soils. The fill and the natural soils were sandy to silty clay and clayey sand with a significant percentage of sandstone, claystone and siltstone bedrock fragments. The soils were deposited by gravity from the weathering of bedrock exposures on slopes

above the site. The thickness of fill could not be determined at boring locations because of similar appearances of the fill and natural soils.

The soils were stiff to very stiff based on the results of field penetration resistance tests. Selected samples of the soils were at moisture contents of 4.5 to 16.8 percent and dry densities of 98 to 122 pounds per cubic foot (pcf). Atterberg limits were liquid limits of 22 to 39 percent and plasticity indices of 8 to 24 percent. The samples had 18 to 81 percent silt and clay size particles (passing the No. 200 sieve). Hydrometer testing on 5 samples determined 45 to 66 percent silt and 4 to 23 percent clay in the fine grained portion of samples. Five samples of the soils were tested for volume change potential using a one-dimensional consolidometer. The samples exhibited 0.5 percent compression to 1.3 percent swell when wetted under a vertical pressure of 1,000 psf. Laboratory test results are presented in Appendix A.

Conclusions

Based on the results of our geologic and geologic hazard evaluations, the site is not subject to natural or geologic hazards. Natural or geologic hazards should not adversely affect the facility. Based on information from our exploratory borings and laboratory testing, the soils and bedrock should not have a significant adverse influence on the facility.

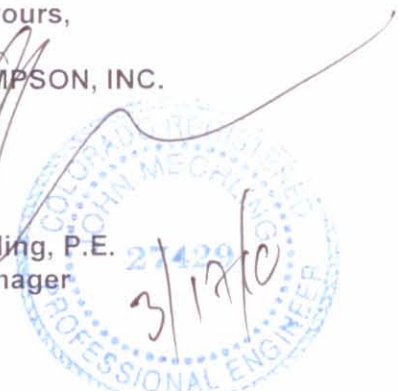
Limitations

Our exploratory borings were located to obtain a reasonably accurate picture of subsurface conditions below the site. Variations in the subsurface conditions not indicated by our borings will occur.

This investigation was conducted in a manner consistent with that level of care and skill ordinarily exercised by geotechnical engineers currently practicing under similar conditions in the locality of this project. No warranty, express or implied, is made. If we can be of further service in discussing the contents of this letter, please call.

Very truly yours,

CTL | THOMPSON, INC.



John Mechling, P.E.
Branch Manager

JM:cd

cc: Via email to phil@pvcmi.com

Geology Section References

1. "Surficial Geology, Geomorphology, and General Engineering Geology of Parts of the Colorado River Valley, Roaring Fork River Valley, and Adjacent Areas, Garfield County, Colorado" by J. M. Soule and B. K. Stover, Colorado Geologic Survey Open File Report 85-1, Plate 1A - Surficial Geologic Map, Plate 2A - Geomorphic Features Map, Plate 3A – Geologic Hazards Map, and Plate 4A – Construction - Materials Map, 1985

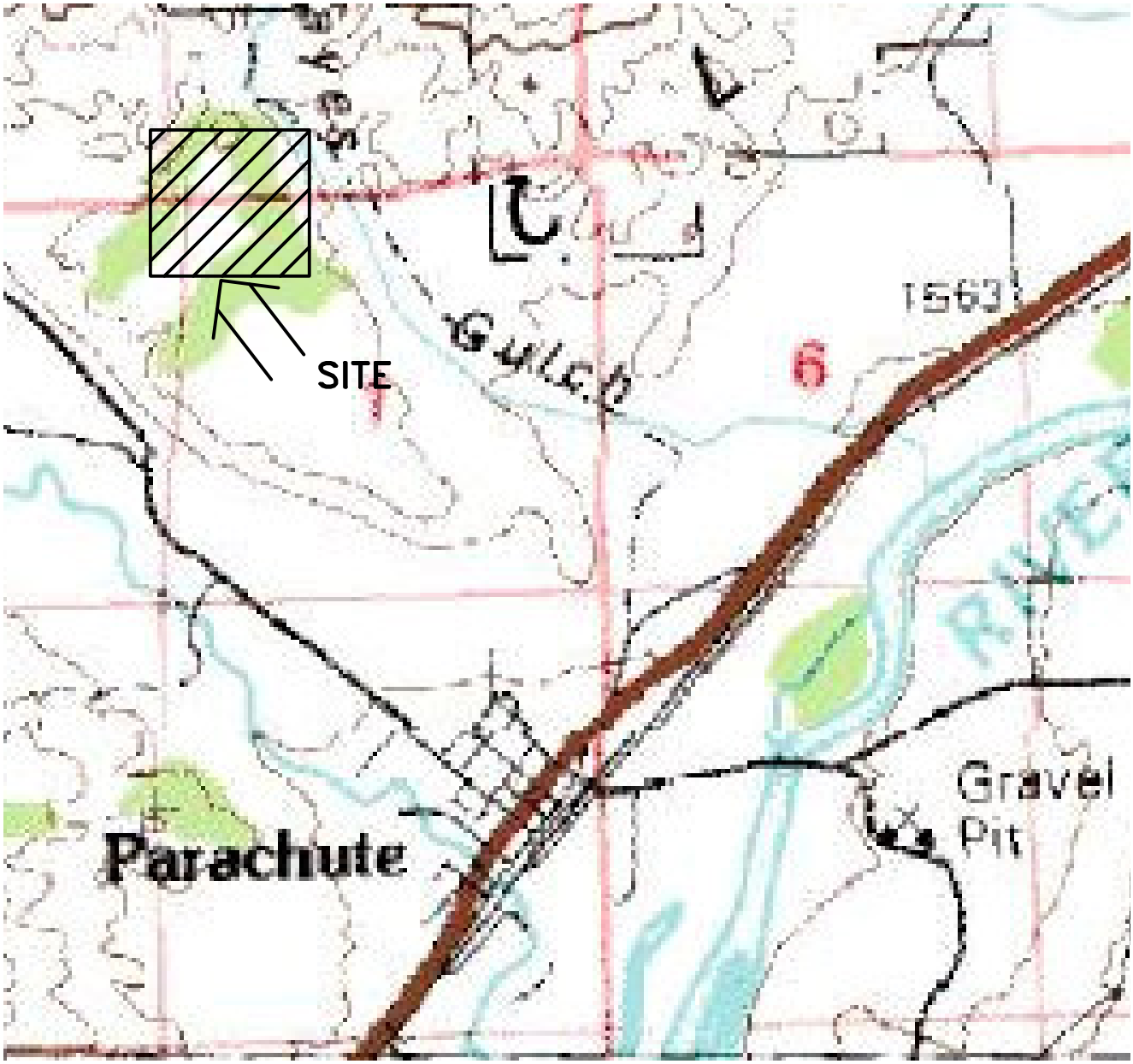
2. "Geologic Map of the Leadville 1 degree by 2 degree Quadrangle, Northwestern Colorado" compiled by Ogden Tweto, Robert Moench and John C. Reed, Jr., US Geological Survey Map I-99, 1978

3. "Guidelines and Criteria for Identification and Land-Use Controls of Geologic Hazard and Mineral Resource Areas" by W.P. Rogers, et. al, Special Publication 6, Colorado Geologic Survey, 1974

4. Aerial Photography by Google Earth. Date believed to be several years ago, prior to construction of facilities south of the earth-filled ponds.

5. AASHTO LRFD Bridge Design Specifications, by American Association of Highway and Transportation Engineers, Chapter 3.10 - Earthquake Effects, Interim 2008

SCALE: 1" = 2,000'



Vicinity Map

Phil Vaughn Construction Management, Inc.
Williams - Parachute Water Handling Facility
Project No. GS05448-115

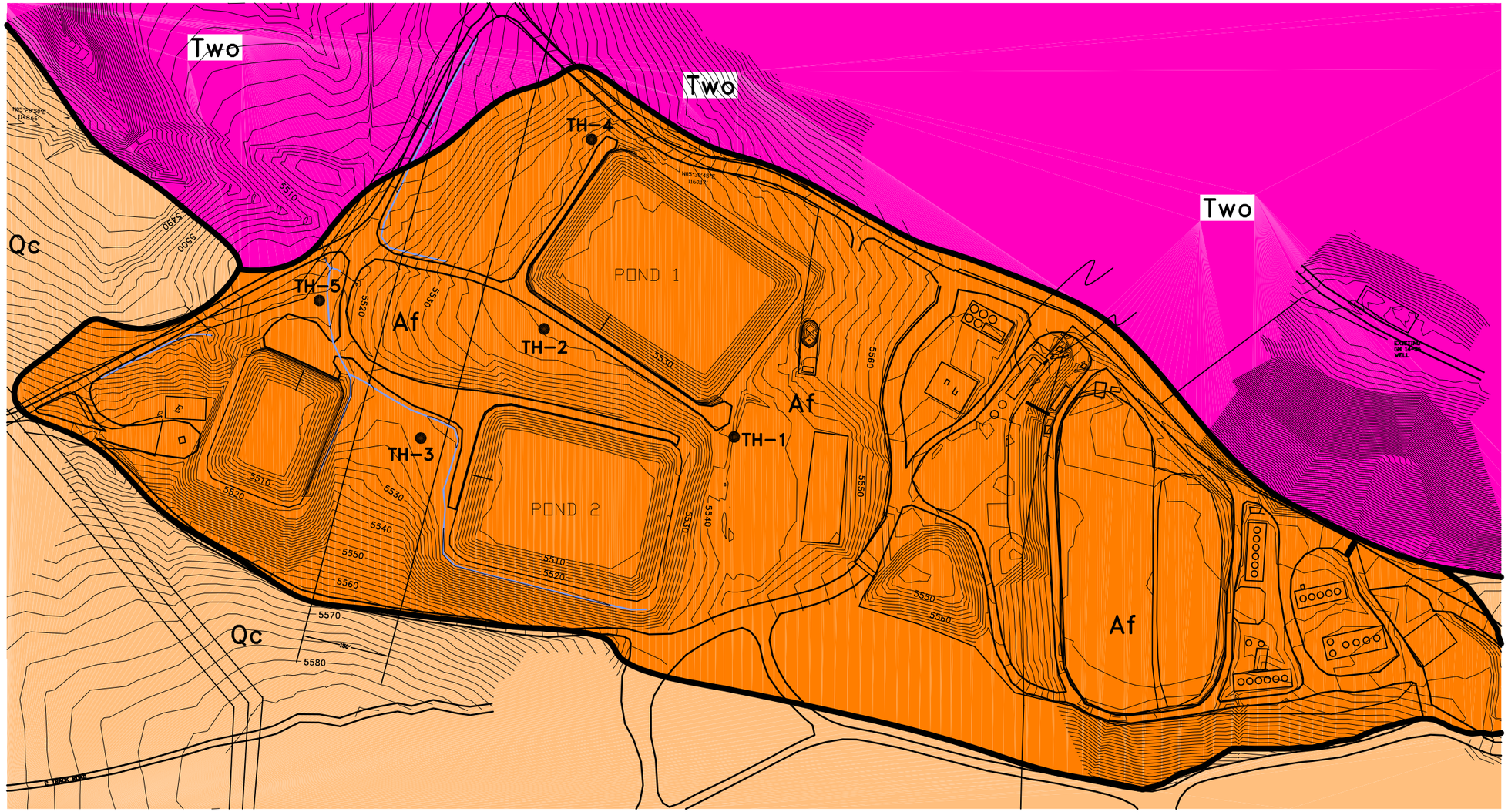
Fig. 1

GS05448_F1 03/17/10 ERW

Scale: 1"=200'

LEGEND:

- Af – Man–placed fill and areas disturbed by grading.
- Qc – Colluvium, shale and sandstone fragments in a clay matrix with scattered cobbles and boulders.
- Two – Wasatch Formation shale, siltstone and sandstone.



Geologic Map

Fig. 2

Phil Vaughn Construction Management, Inc.
Williams - Parachute Water Handling Facility
Project No. GS05448-115

GS05448_F2 03/17/10 CD

Scale: 1"=200'

NOTE:

Locations of exploratory borings are approximate.

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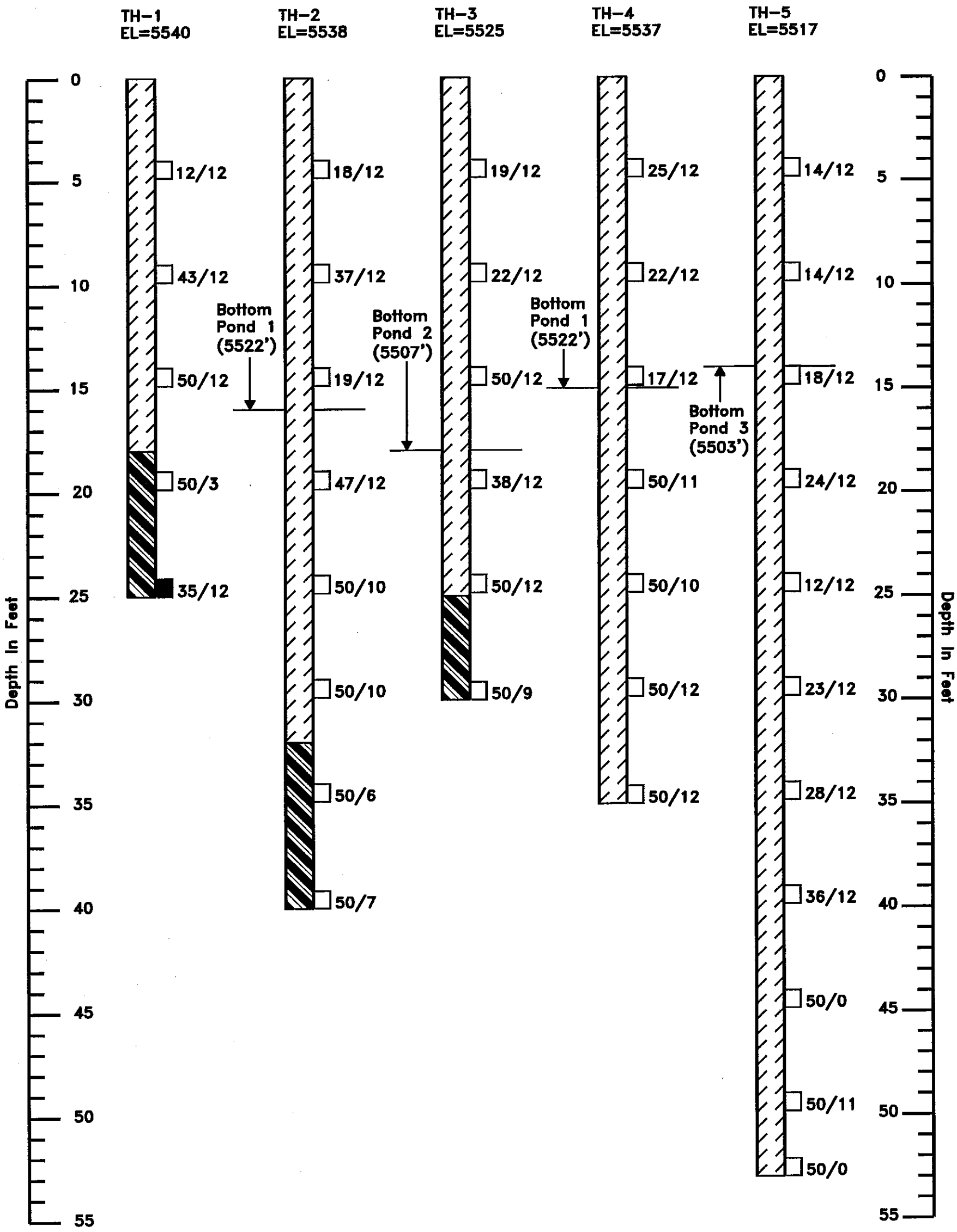
Williams - Parachute Water Handling Facility
Project No. GS05448-115

Locations of Exploratory Borings

Fig. 3

GS05448_F3 03/17/10 CD



SUMMARY LOGS OF EXPLORATORY BORINGS

Project No. GS05448-115

Fig. 4

LEGEND:

Fill or colluvial soil consisting of sandy clay and clayey sand with significant percentages of sandstone, siltstone and claystone fragments and scattered cobbles and boulders, stiff to very stiff, slightly moist to moist, brown (CL, CL–ML, SC)

Sandstone, claystone and siltstone bedrock, medium hard to very hard, slightly moist to moist, brown.

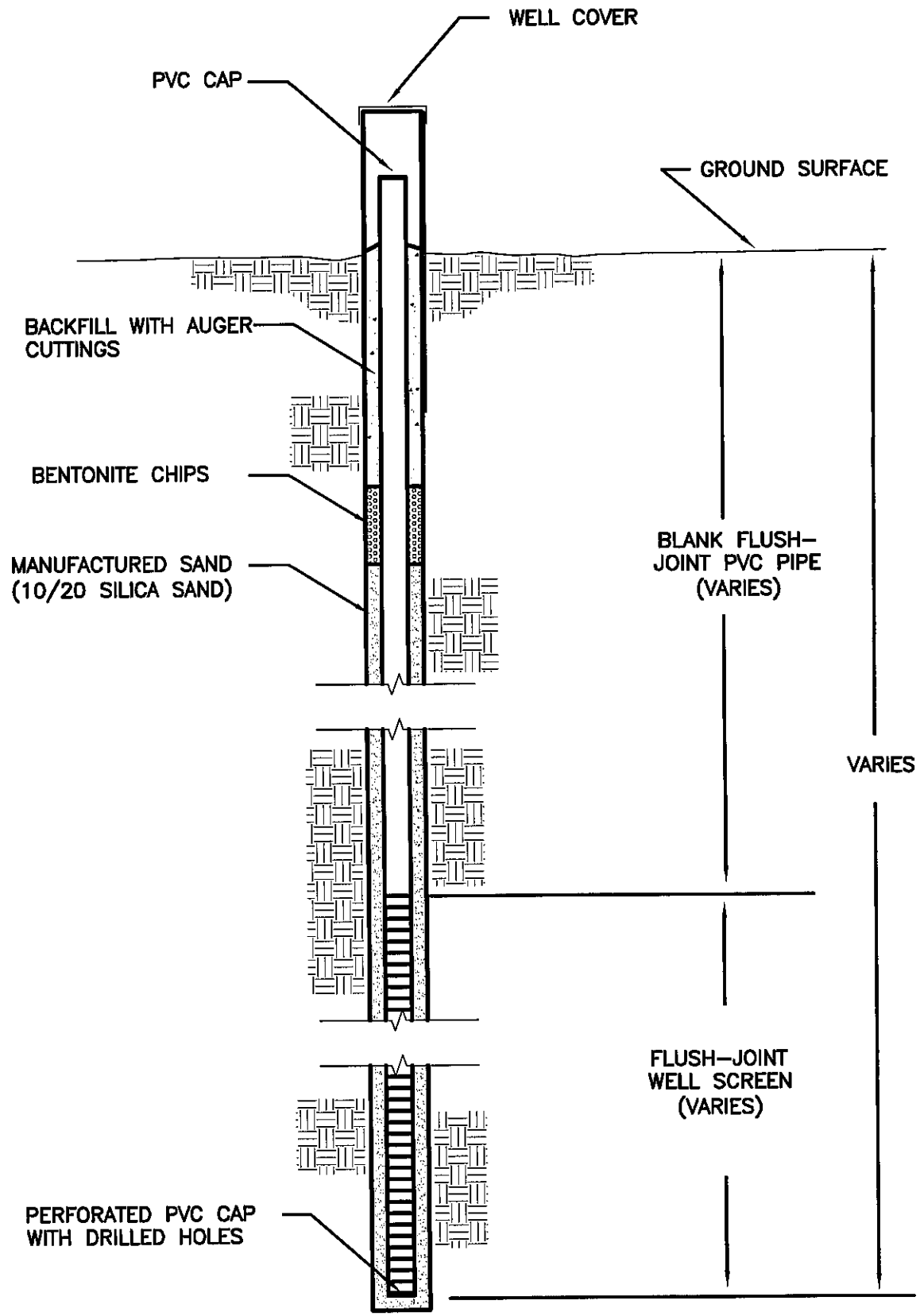
Drive sample. The symbol 12/12 indicates that 12 blows of a 140 pound hammer falling 30 inches were required to drive a 2.5 inch O.D. California sampler 12 inches.

Drive sample. The symbol 35/12 indicates that 35 blows of a 140 pound hammer falling 30 inches were required to drive a 2.0 inch O.D. standard sampler 12 inches.

NOTES:

1. Exploratory borings were drilled on February 23 and 24, 2010 with 4–inch diameter, continuous–flight solid–stem auger and an track–mounted drill rig.
2. Locations and elevations of exploratory borings are approximate.
3. No free ground water was found in our exploratory borings at the time of drilling.
4. These exploratory borings are subject to the explanations, limitations and conclusions as contained in this report.

SUMMARY LOGS OF EXPLORATORY BORINGS



Typical Piezometer Installation Detail

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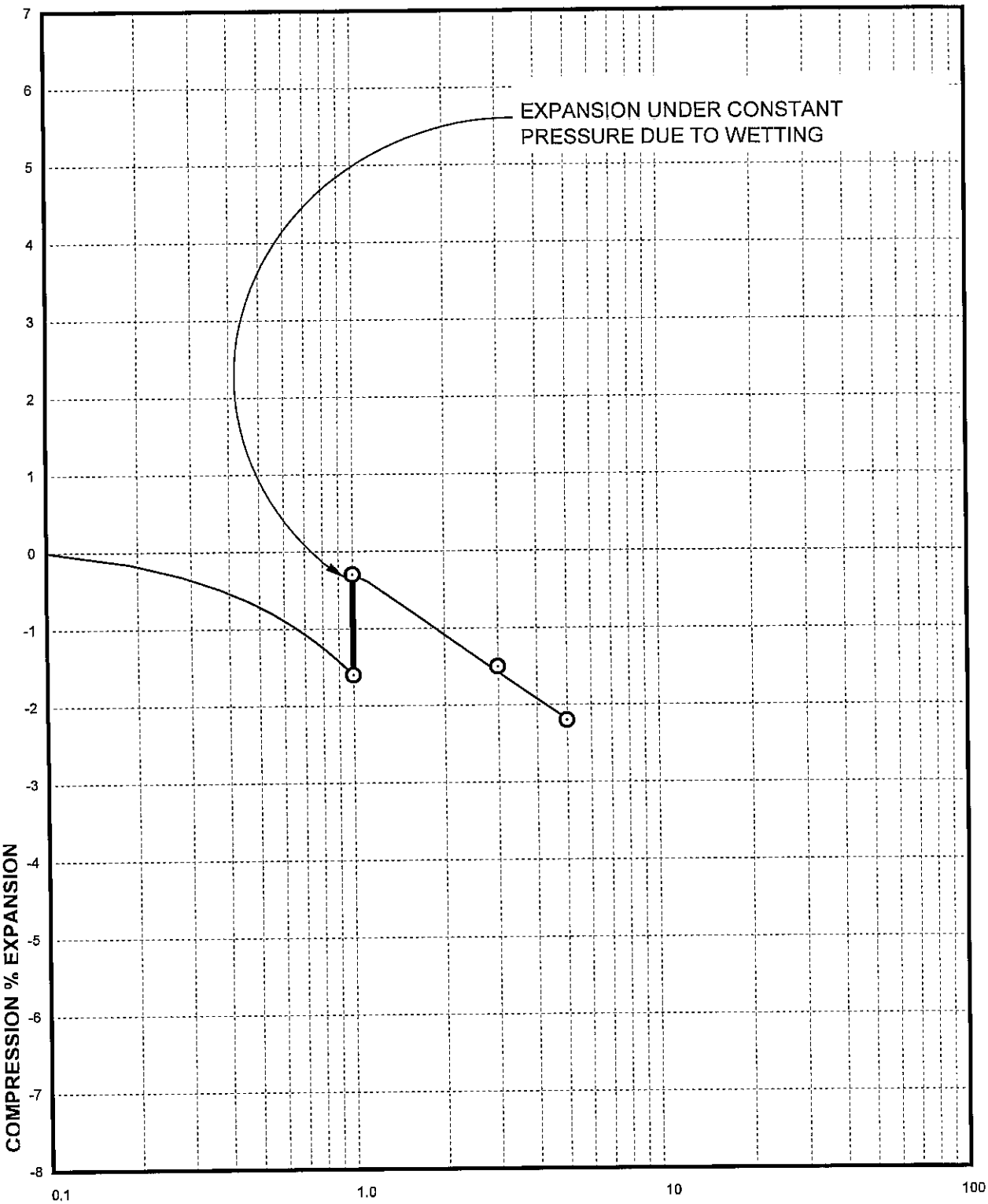
Williams-Parachute Water Handling Facility
Project No. GS05448-115

Fig. 6

80-PIEZOMETER1_02 CD

APPENDIX A

LABORATORY TEST RESULTS



Sample of CLAY, SLIGHTLY GRAVELLY (CL)

From TH-1 AT 14 FEET

DRY UNIT WEIGHT= 122 PCF

MOISTURE CONTENT= 7.2 %

Swell Consolidation Test Results

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WILLIAMS WATER HANDLING FACILITY
PROJECT NO. GS05448
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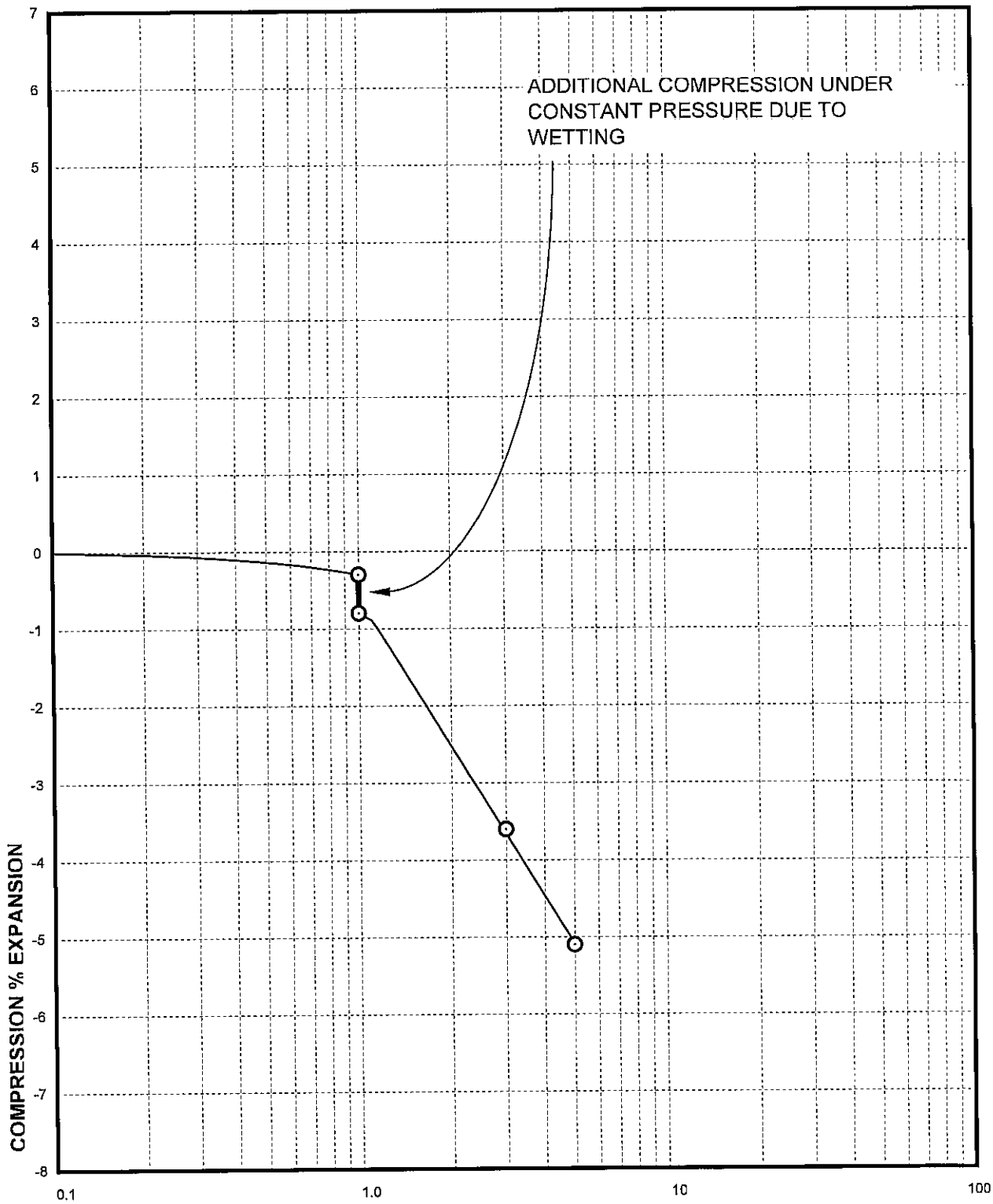
FIG. A-1



Sample of SAND, CLAYEY (SC)

From TH-2 AT 9 FEET

DRY UNIT WEIGHT= 113 PCF

MOISTURE CONTENT= 5.8 %

Swell Consolidation Test Results

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WILLIAMS WATER HANDLING FACILITY
PROJECT NO. GS05448
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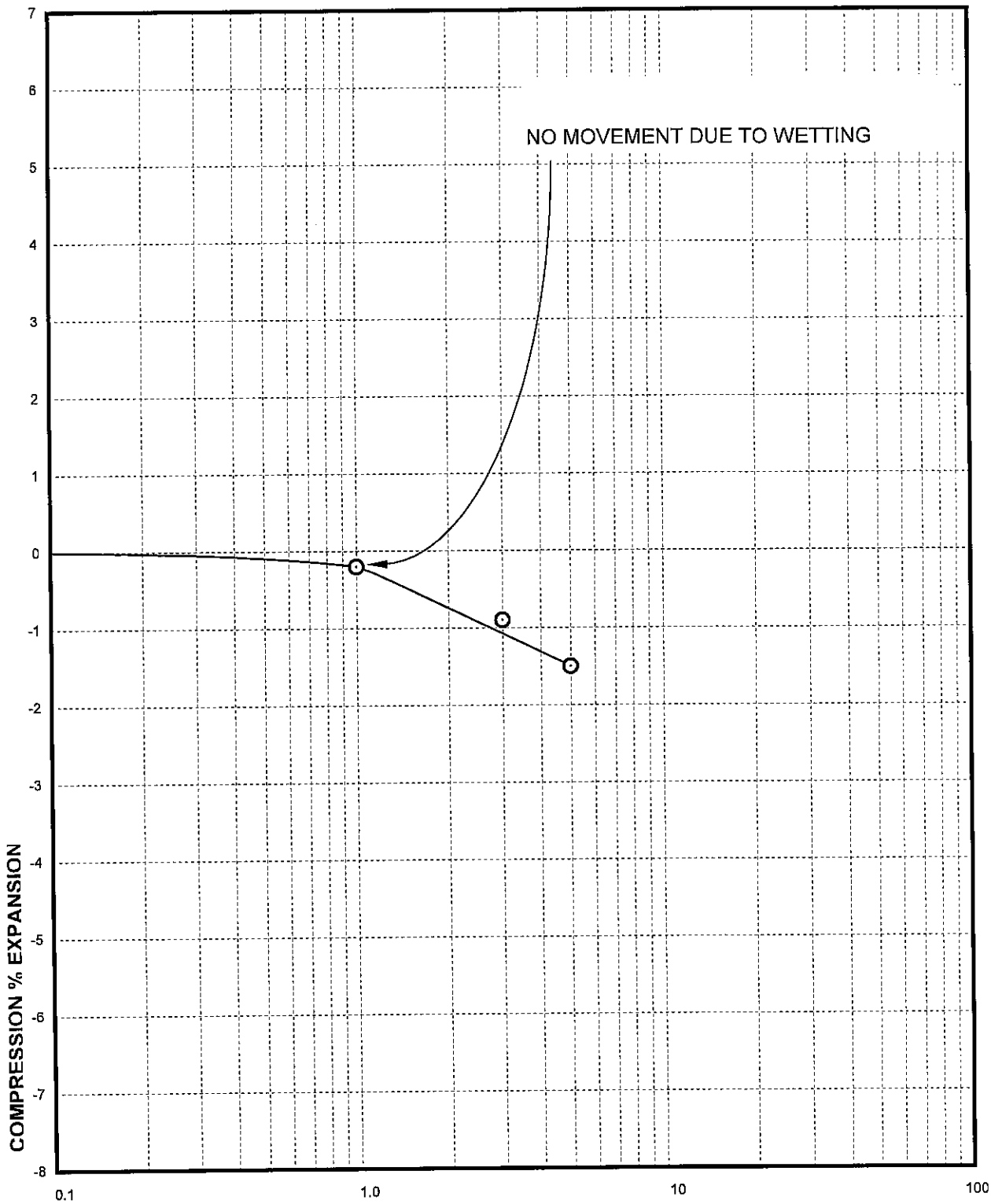
FIG. A-2



Sample of SAND, CLAYEY (SC)

From TH-3 AT 4 FEET

DRY UNIT WEIGHT= 120 PCF

MOISTURE CONTENT= 8.8 %

Swell Consolidation Test Results

PHIL VAUGHAN CM
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PROJECT NO. GS05448
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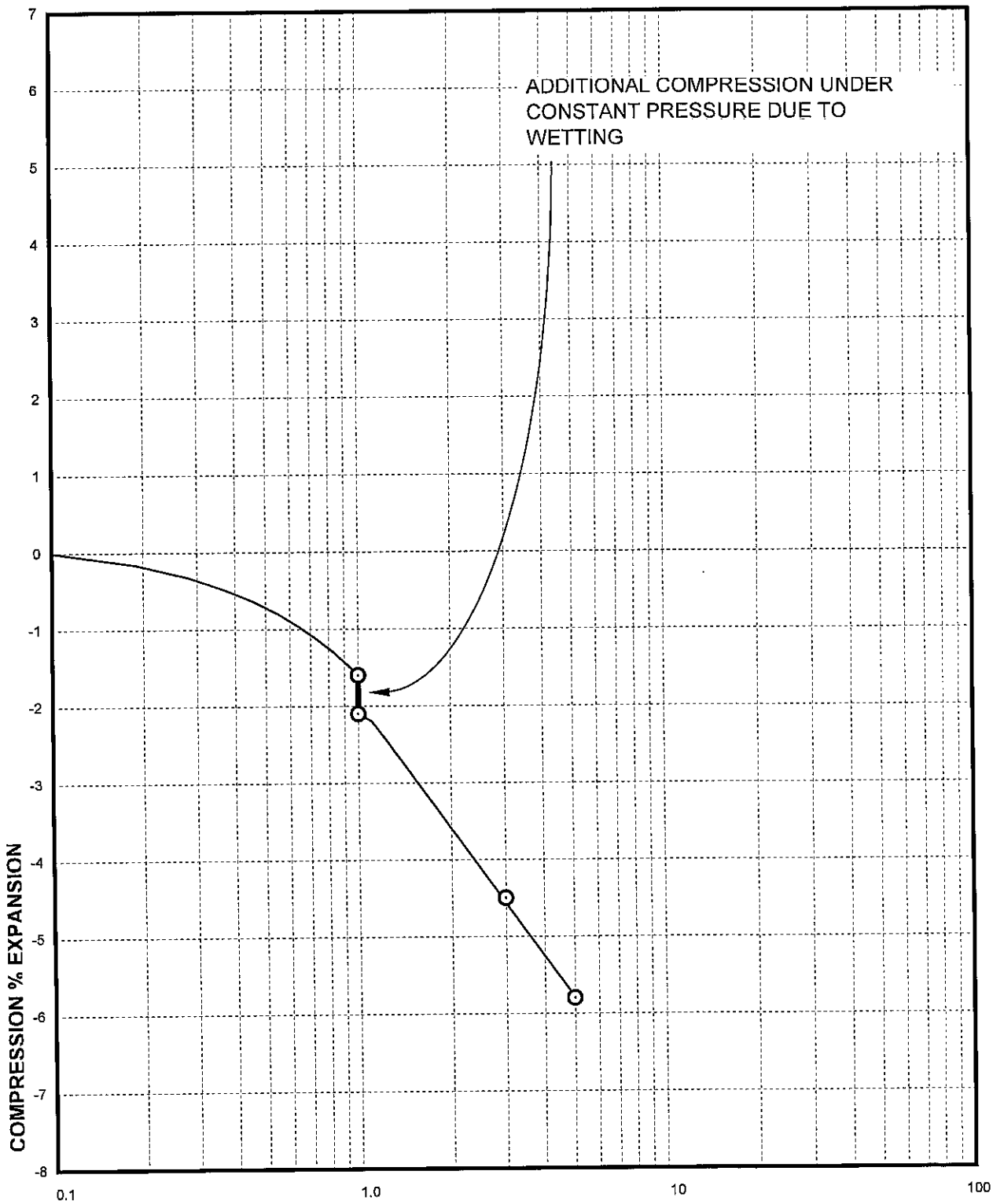
FIG. A-3



Sample of SAND, CLAYEY (SC)

From TH-5 AT 4 FEET

DRY UNIT WEIGHT= 109 PCF

MOISTURE CONTENT= 7.4 %

Swell Consolidation Test Results

PHIL VAUGHAN CM
WILLIAMS WATER HANDLING FACILITY
PROJECT NO. GS05448
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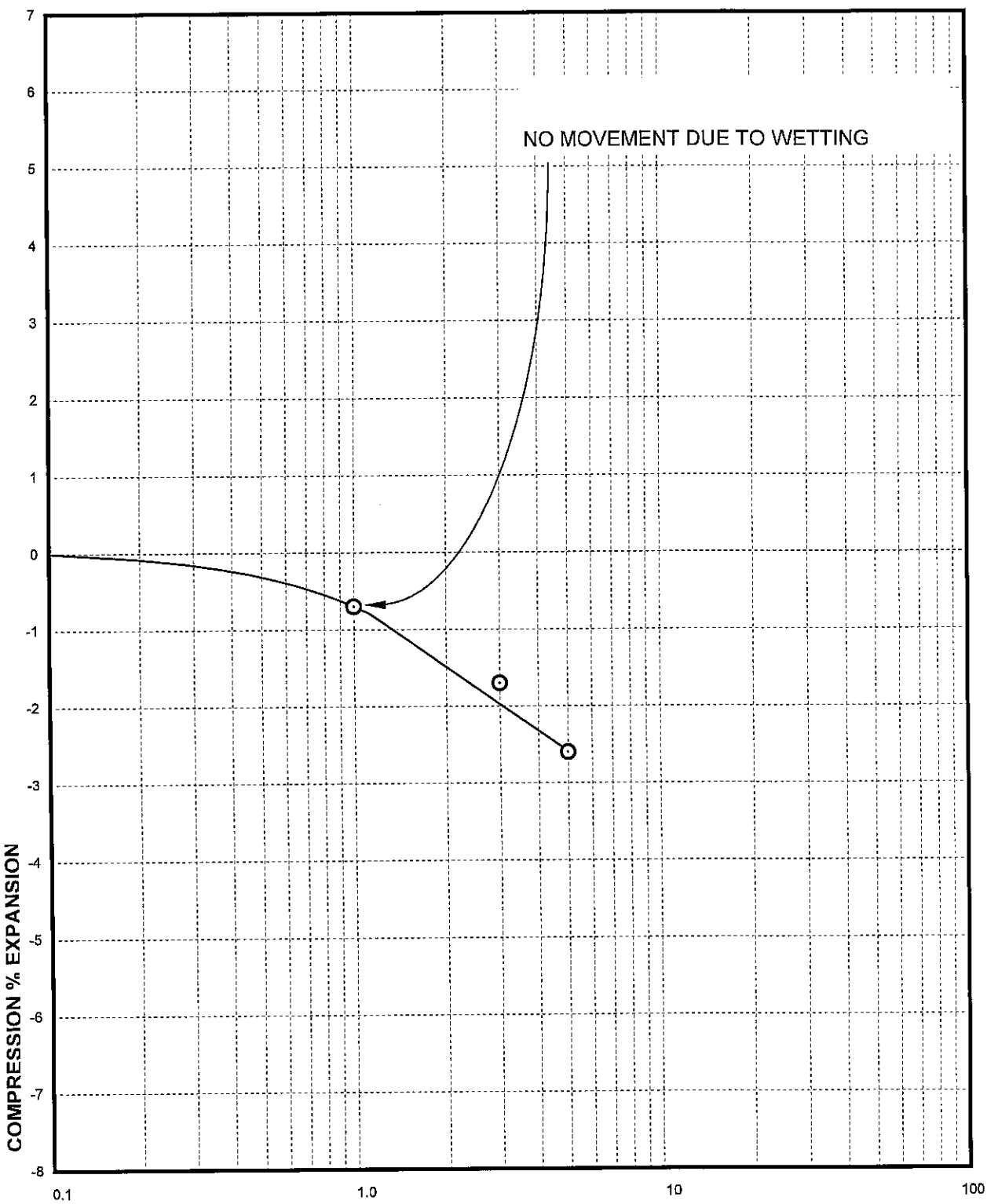
FIG. A-4



Sample of CLAY, SLIGHTLY GRAVELLY (CL)

From TH-5 AT 14 FEET

DRY UNIT WEIGHT= 114 PCF

MOISTURE CONTENT= 11.2 %

Swell Consolidation Test Results

PHIL VAUGHAN CM
WILLIAMS WATER HANDLING FACILITY
PROJECT NO. GS05448
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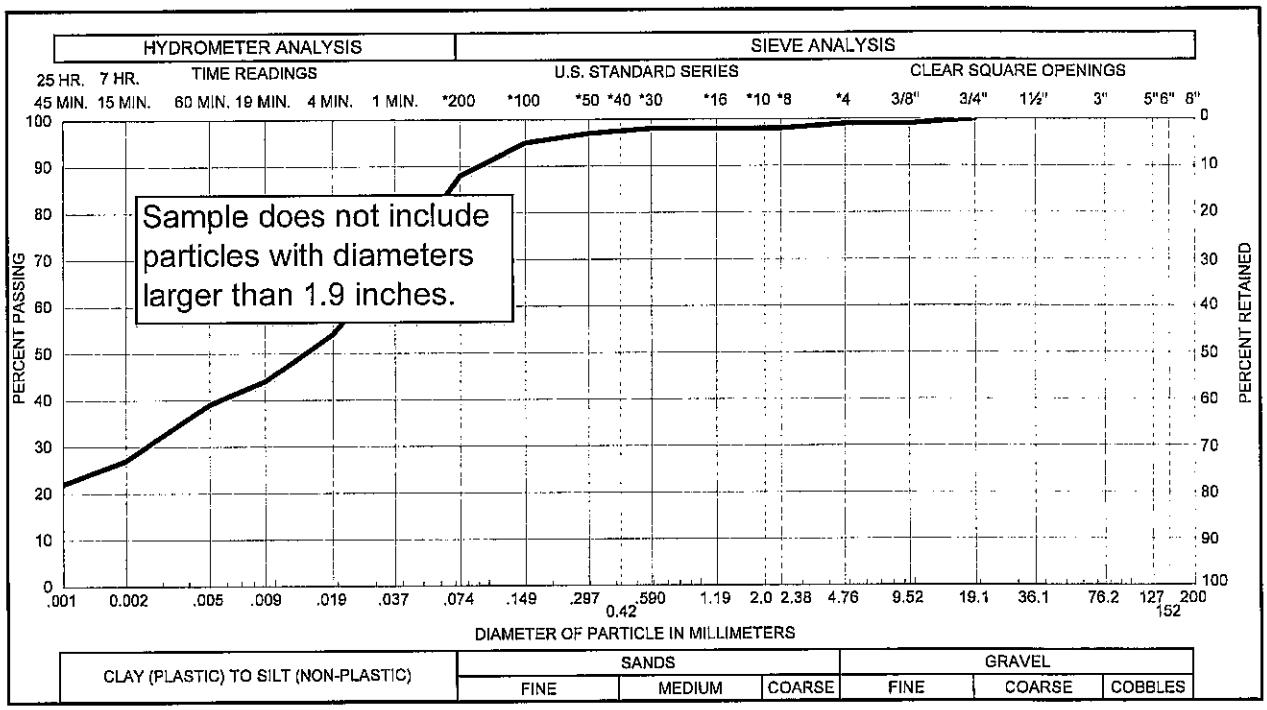
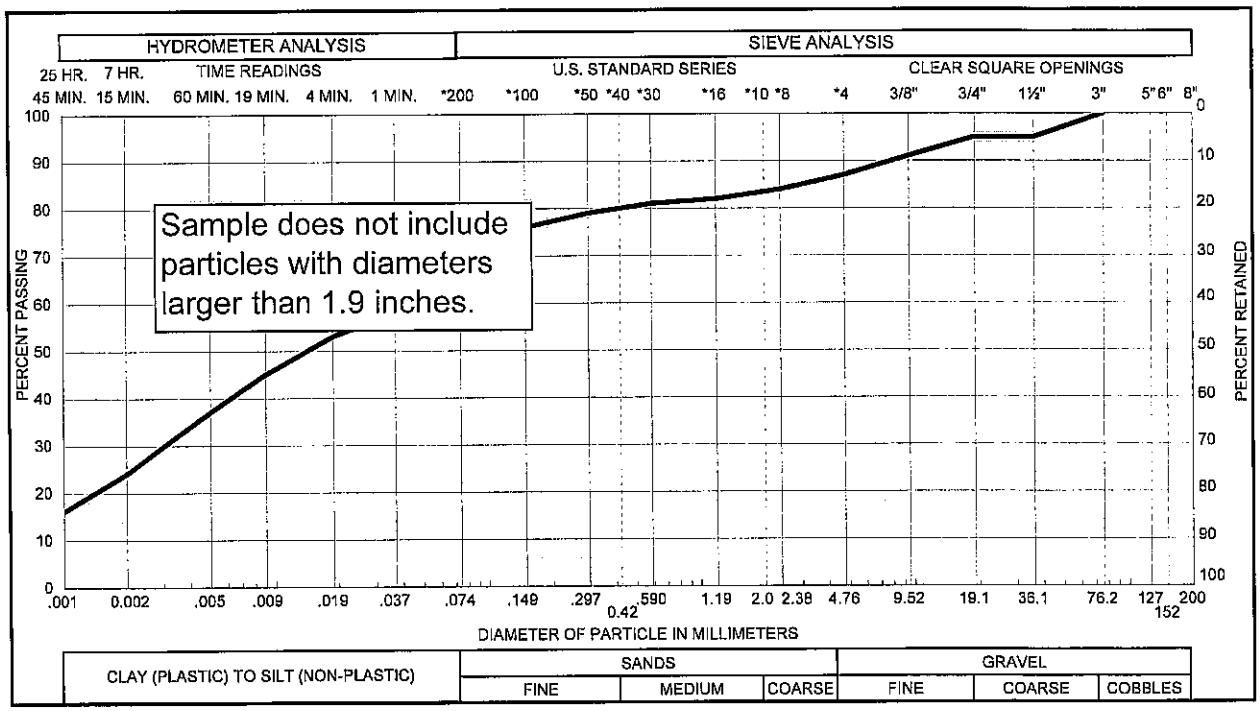
FIG. A-5



Sample of CLAY, SLIGHTLY GRAVELLY (CL)
From TH - 1 AT 4 FEET

GRAVEL	1 %	SAND	11 %
SILT & CLAY	88 %	LIQUID LIMIT	%
PLASTICITY INDEX			%



Sample of CLAY, SLIGHTLY GRAVELLY (CL)
From TH - 2 AT 19 FEET

GRAVEL	13 %	SAND	15 %
SILT & CLAY	72 %	LIQUID LIMIT	%
PLASTICITY INDEX			%

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PROJECT NO. GS05448-115
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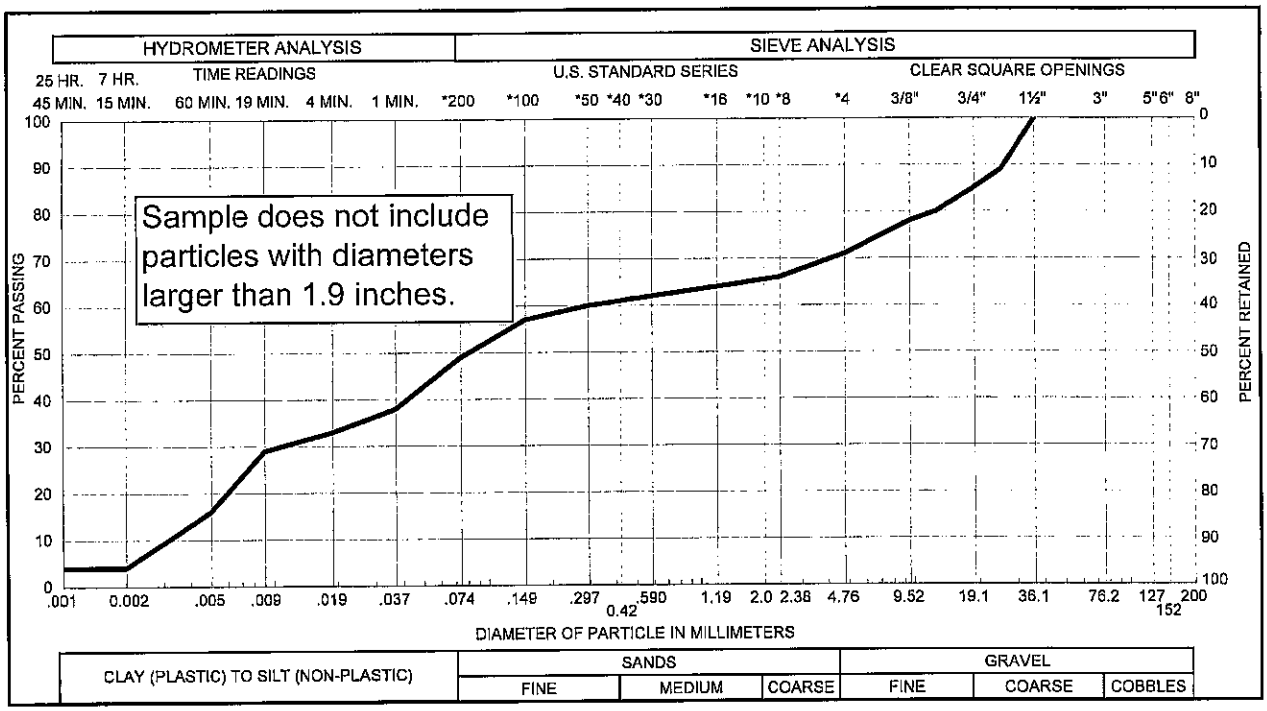
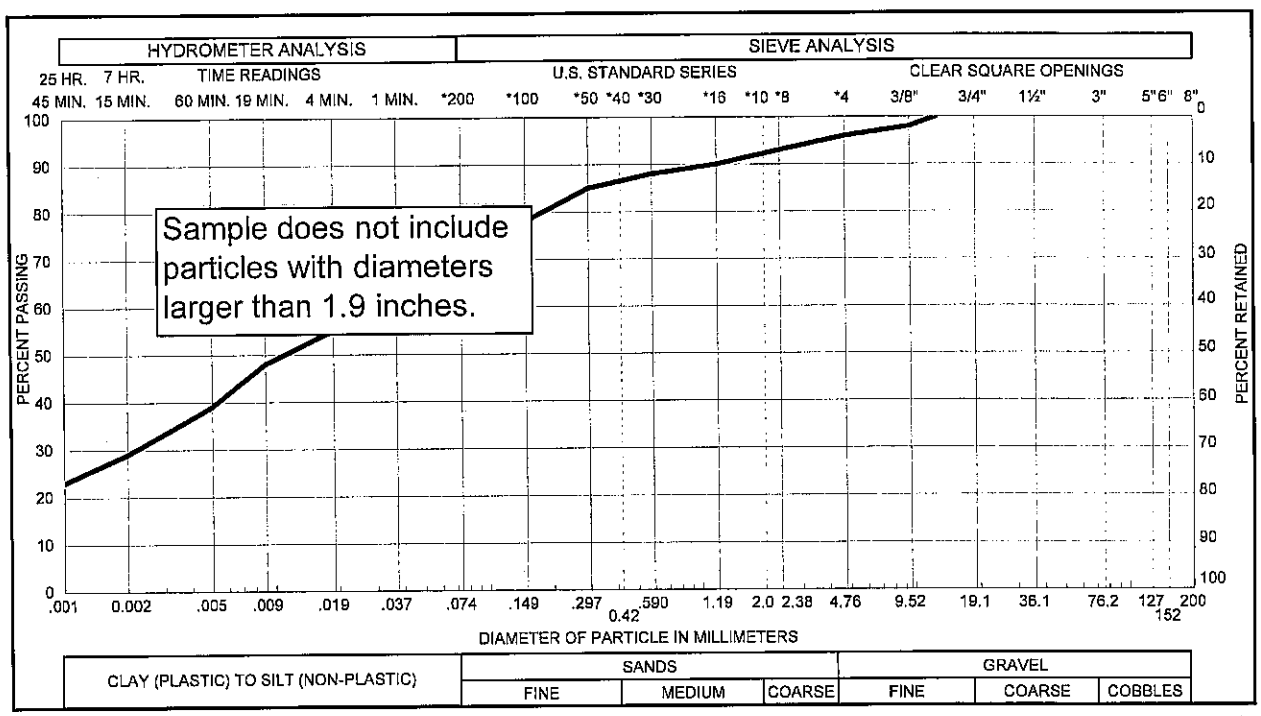
Gradation Test Results

FIG. A-6



Sample of SAND, CLAYEY (SC)
From TH - 3 AT 14 FEET

GRAVEL 29 % SAND 22 %
SILT & CLAY 49 % LIQUID LIMIT %
PLASTICITY INDEX %



Sample of CLAY, SLIGHTLY GRAVELLY (CL)
From TH - 4 AT 9 FEET

GRAVEL 4 % SAND 26 %
SILT & CLAY 70 % LIQUID LIMIT %
PLASTICITY INDEX %

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PROJECT NO. GS05448-115
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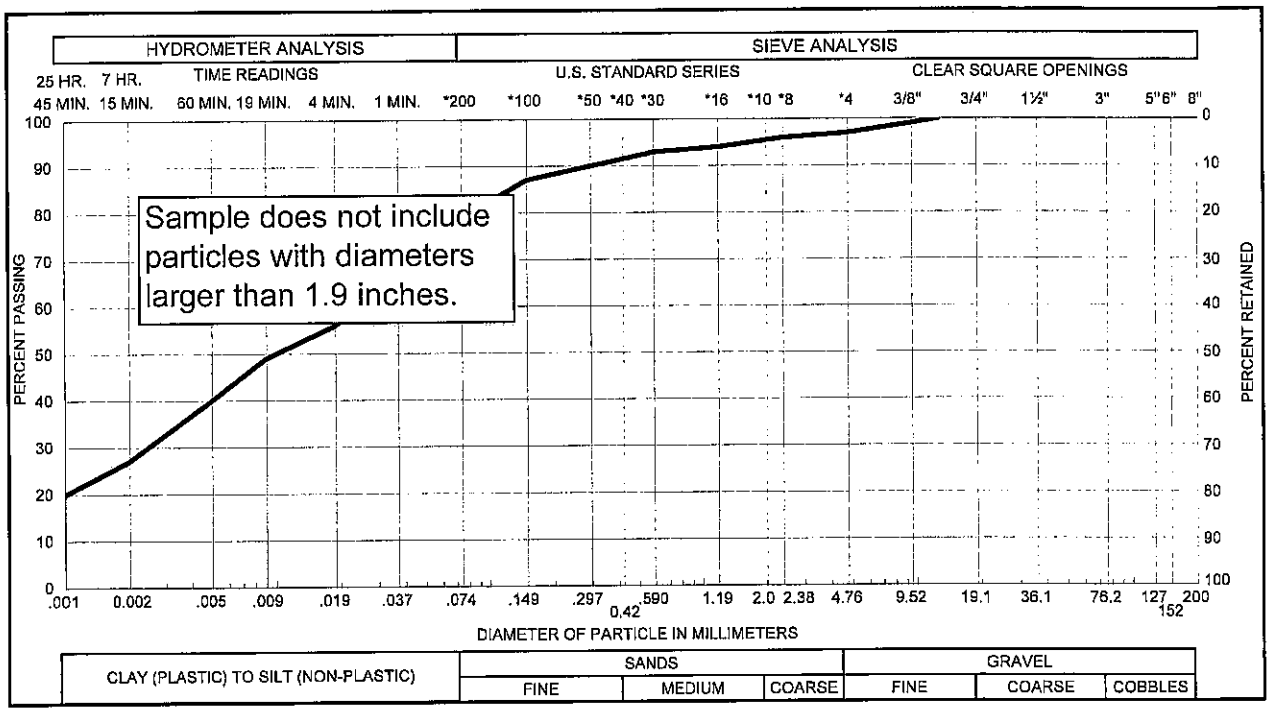
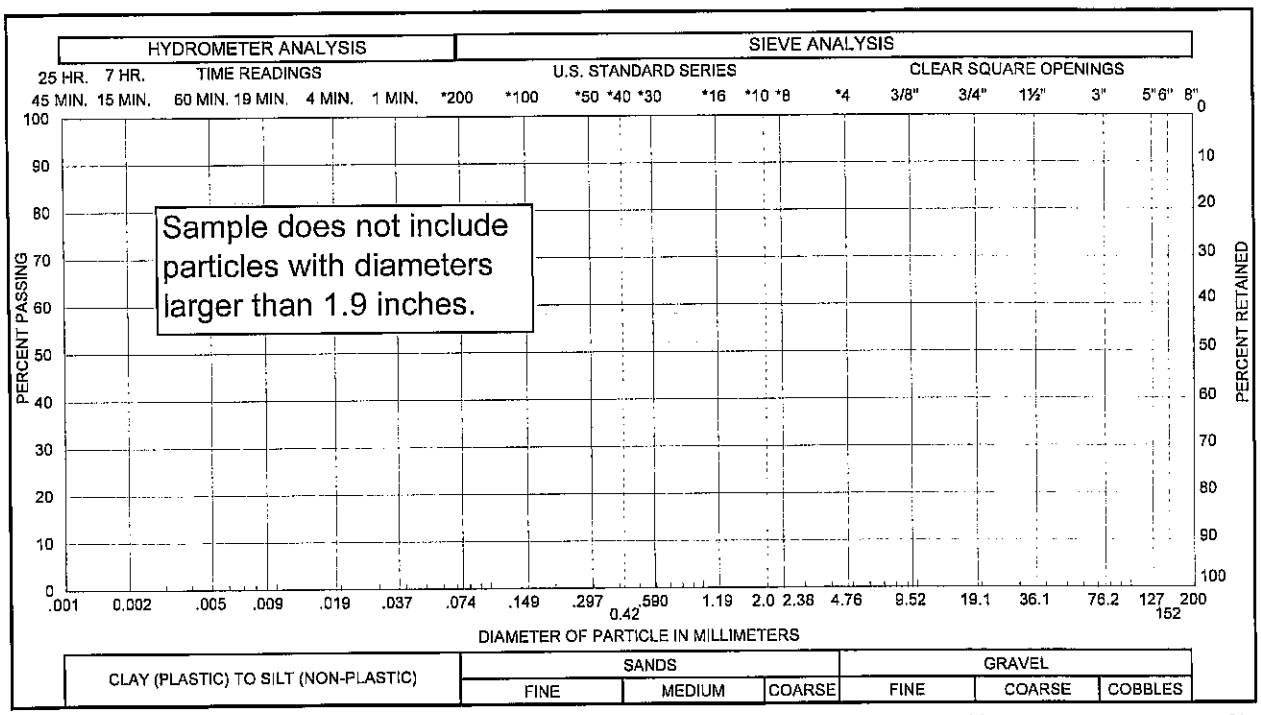
Gradation Test Results

FIG. A-7



Sample of CLAY, SLIGHTLY GRAVELLY (CL)
From TH - 5 AT 24 FEET

GRAVEL 3 % SAND 18 %
SILT & CLAY 79 % LIQUID LIMIT %
PLASTICITY INDEX %



Sample of
From

GRAVEL % SAND %
SILT & CLAY % LIQUID LIMIT %
PLASTICITY INDEX %

PHIL VAUGHAN CM
WILLIAMS WATER HANDLING FACILITY
PROJECT NO. GS05448-115
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Gradation Test Results

FIG. A-8

TABLE I

SUMMARY OF LABORATORY TESTING
PROJECT NO. GS05448-115

LOT	DEPTH (FEET)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	ATTERBERG LIMITS		SWELL TEST RESULTS*	PERCENT GRAVEL (%)	PERCENT SAND (%)	PASSING NO. 200 SIEVE (%)	DESCRIPTION
				LIQUID LIMIT (%)	PLASTICITY INDEX (%)	SWELL (%)				
TH-1	4	10.4	98				1	11	88	CLAY, SLIGHTLY GRAVELLY (CL)
TH-1	9	4.5	117	22	8				42	SAND, CLAYEY (SC)
TH-1	14	7.2	122			1.3				CLAY, SLIGHTLY GRAVELLY (CL)
TH-2	4	11.2	117	33	17				48	SAND, CLAYEY (SC)
TH-2	9	5.8	113			-0.5				SAND, CLAYEY (SC)
TH-2	14	8.8	116	33	18				53	CLAY, SLIGHTLY GRAVELLY (CL)
TH-2	19						13	15	72	CLAY, SLIGHTLY GRAVELLY (CL)
TH-2	29	8.1	121	39	24				81	CLAY, SLIGHTLY GRAVELLY (CL)
TH-3	4	8.8	120			0.0				SAND, CLAYEY (SC)
TH-3	9	11.9	122	32	15				54	CLAY, SLIGHTLY GRAVELLY (CL)
TH-3	14	8.2	116				29	22	49	SAND, CLAYEY (SC)
TH-3	19	7.8	122	29	11				18	SAND, CLAYEY (SC)
TH-3	24	9.6	117	30	11				27	SAND, CLAYEY (SC)
TH-4	4	8.9	116	34	18				48	SAND, CLAYEY (SC)
TH-4	9	9.4	116				4	26	70	CLAY, SLIGHTLY GRAVELLY (CL)
TH-4	19	9.1	116	36	18				63	CLAY, SLIGHTLY GRAVELLY (CL)
TH-4	34	9.1	117	28	9				28	SAND, CLAYEY (SC)
TH-5	4	7.4	109			-0.5				SAND, CLAYEY (SC)
TH-5	9	10.0	103	35	17				39	SAND, CLAYEY (SC)
TH-5	14	11.2	114			0.0				CLAY, SLIGHTLY GRAVELLY (CL)
TH-5	24	15.3	115				3	18	79	CLAY, SLIGHTLY GRAVELLY (CL)
TH-5	34	16.8	111	36	17				56	CLAY, SLIGHTLY GRAVELLY (CL)

* SWELL MEASURED WITH 1000 PSF APPLIED PRESSURE, OR ESTIMATED IN-SITU OVERBURDEN PRESSURE. NEGATIVE VALUE INDICATES COMPRESSION.