NM1 - __50___

PART 36 PERMIT APPLICATION

Dated

July 30, 2012

Industrial Ecosystems Inc.
Soil Reclamation Center

P.O. Box 2043
Farmington, NM 87499

Phone: (505) 632-1782
Fax: (505) 632-1876

#49 CR 3150
Aztec, NM 87410

July 30, 2012

Brad Jones, Environmental Engineer
NM Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 87505

Re: Request for Additional Information – Reply to Letter dated 11/22/11
Permit Application Review for a Proposed Commercial SWMF
Crowe Blanco Properties, LLC Operated by Industrial Ecosystems, Inc.

Brad:

This letter is being sent to you along with the requested corrections, additions, and modifications identified in your letter dated 11/22/11.

The majority of the corrections, additions and modifications will be found in each corresponding section of this binder which is in order according to 19.15.36.8 NMAC – SWMF Permits & Application Requirements.

There are a few items noted in your reply letter which do not fall under any specific section of 19.15.36 NMAC and/or specific items which we would like address/clarify in this cover letter as follows:

- Manure – request to identify the engineering designs for manure containment and storage are located in Section 19.15.36.8.C.5 – Engineering Designs & Technical Data. The manure piles will be bermed (secondary containment) within a bermed cell to prevent run-off. (Also refer to binder Section 19.15.36.8.C.6-Management Plan – Subsection Section 10.8 Run On/Off Water Control.
- Recycle/Reuse "Centrate" or Storm water to add moisture to biopile(s). The "Allowable Chloride in Water Calculation" form is a spreadsheet and contains formulas, therefore, the one provided in the application uses "fictitious/sample" Cl-in soil (Enter soil Chloride Concentration) amounts. If needed, an electronic version can be emailed to you so that you can see how the spreadsheet is formulated.

As always, please feel free to contact me by phone or email if you should have any questions or if additional information is needed.

Respectfully,

Marcella Marquez

Marcella Marquez
HSE Administrator

TABLE OF CONTENTS

PRINCIPAL OFFICERS/OWNERS/MANAGEMENT
(19.15.36.8.C.1 NMAC)

Crowe Blanco Properties, LLC
Operated by Industrial Ecosystems, Inc.

President/Treasurer:

John J. Kiely
401 S. LaSalle, Suite 606
Chicago, IL 60605

Vice President/Assistant Secretary:

Jeff Mohajir
1701 Walnut
Kansas City, MO 64108

Secretary:

John P. Crowe
1015 W. 54th Street
Kansas City, MO 64112

Owner 25% or more:

John P. Crowe

Individual(s) Primary Responsible for Management of Facility:

Industrial Ecosystems, Inc.
Terry Lattin
49 CR 3150
Aztec, NM 87410

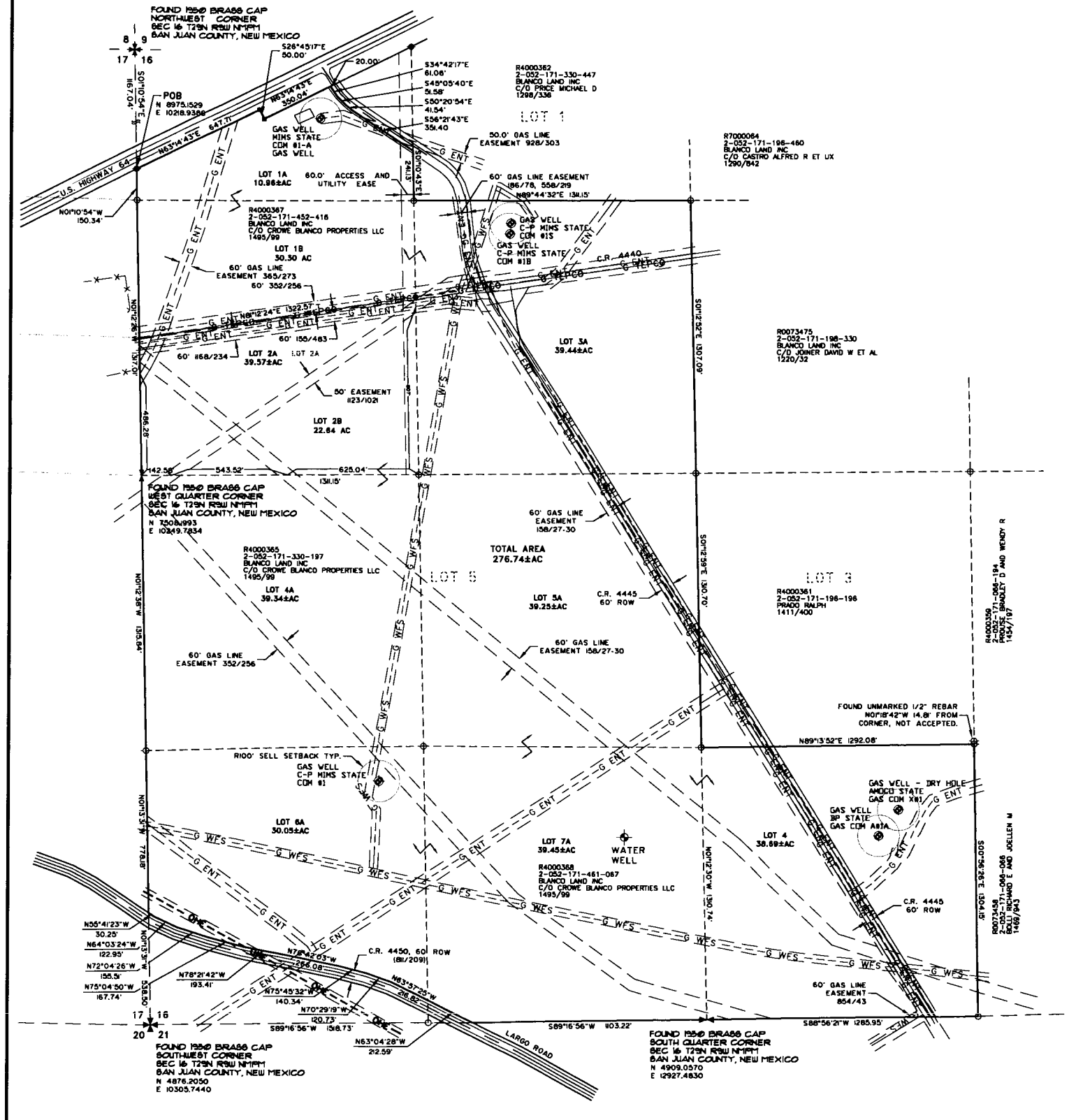
Plat & Topographic Map(s)
(19.15.36.8.C.2 NMAC)

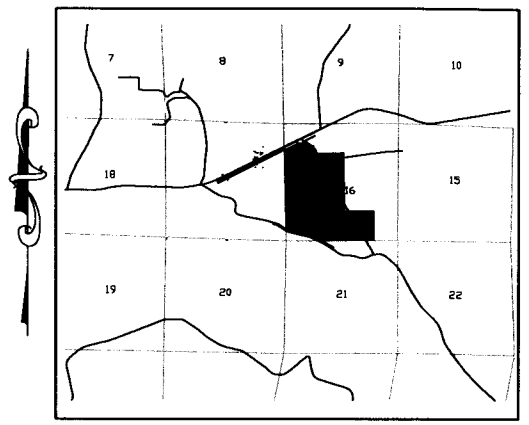
Also refer to:

- Binder Section 19.15.36.8.C.4 – Page 4.3 (Waterways)
- Binder Section 19.15.36.8.C.4 – Pages 4.6 & 4.7
- Binder Section 19.15.36.8.C.15 – Page 15.70 (Water Wells w/in 1 Mile)

BOUNDARY SURVEY PLAT

For Crowe Blanco Properties, LLC
Land Farm Permit
Lot 4 of the Blanco Land Subdivision No.1
as recorded in Book 1309, page 455
and part of Lot 1A, Lots 2A thru 5A and a portion of Lots 6A and 7A
of the Blanco Land Subdivision No.2
as recorded in Book 1322, page 796
and lying in the
W1/2 and the SW1/4 SE1/4 of Section 16, T29N R09W, N.M.P.M.
San Juan County, New Mexico
Operated by: Industrial Ecosystems, Inc.





VICINITY MAP
(nts)

LEGEND

- G WFS — = WILLIAMS FIELD SERVICES GAS LINE
- G ENT — = ENTERPRISE GAS LINE
- G TEPCO — = TEPCO GAS LINE
- = SECTION CORNER AS NOTED
- = QUARTER CORNER AS NOTED
- = SET 1/2" REBAR W/CAP LS 6159
- = FOUND REBAR W/SURVEY CAP 8894 UNLESS NOTED OTHERWISE
- = HWY DEPT BRASS CAP R/W MON

1" = 300'

300 150 0 300 600 900

SCALE: 1" = 300'

DESCRIPTION

A tract of land being Lot 4 of the Blanco Land Subdivision No. 1 as recorded in Book 1309, page 455 and Lots 1A through 7A of Blanco Land Subdivision No. 2 as recorded in Book 1322, page 796, also lying in the West Half (W1/2) and the Southwest Quarter of the Southwest Quarter (SW1/4 SW1/4) of Section 16, T29N, R9W, N.M.P.M., San Juan County, New Mexico, being more particularly described as follows:

COMMENCING at the Northwest Corner of the above said Section 16;

THENCE: S01°10'54"E and along the west line of said Section 16 for a distance of 967.04 feet to a point of intersection with the south right-of-way line of U.S. Highway 64 and the Northwest Corner of the above said Lot 1A and the Point of Beginning of said tract;
THENCE: NORTHEASTERLY and along the north line of the above said Lot 1A and the south line of U.S. Highway 64 the following courses and distances and N63°14'43"E for a distance of 647.71 feet;
THENCE: S26°45'17"E for a distance of 50.00 feet;
THENCE: N63°14'43"E for a distance of 350.04 feet to a point 20' southwest of the centerline of County Road 4445 as existing at the time of this survey;
THENCE: LEAVING said south line of U.S. Highway 64 and the north line of Lot 1A and along the 20' offset line and parallel with the centerline of County Road 4445 the following courses and distances and S34°42'17"E for a distance of 61.06 feet;
THENCE: S45°05'40"E for a distance of 51.58 feet;
THENCE: S50°20'54"E for a distance of 41.54 feet;
THENCE: S56°21'43"E for a distance of 35.40 feet to a point on the east line of said Lot 1A;
THENCE: LEAVING said 20' offset line and along the east line of said Lot 1A and S01°10'43"E for a distance of 24.13 feet to a found rebar with survey cap marked LS 8894 at the Southeast Corner of the above said Lot 1A and the Northwest Corner of the above said Lot 3A;
THENCE: N89°44'32"E and along the north line of said Lot 3A for a distance of 1341.15 feet to a found rebar with survey cap marked LS 8894 at the Northeast Corner of said Lot 3A;
THENCE: S01°12'52"E and along the east line of said Lot 3A for a distance of 1307.09 feet to a found rebar with survey cap marked LS 8894 at the Southeast Corner of said Lot 3A and the Northeast Corner of the above said Lot 5A;
THENCE: S01°12'09"E and along the east line of said Lot 5A for a distance of 1310.70 feet to a found rebar with survey cap marked LS 8894 at the Southeast Corner of the above said Lot 5A and the Northwest Corner of said Lot 4;
THENCE: N89°13'52"E and along the north line of said Lot 4 for a distance of 1292.08 feet to a found rebar with survey cap marked LS 8894 at the Northeast Corner of said Lot 4;
THENCE: S00°56'26"E and along the east line of said Lot 4 for a distance of 1304.15 feet to a found rebar with survey cap marked LS 8894 and a point on the south line of the above said Section 16 and the Southeast Corner of said Lot 4;
THENCE: S88°56'21"W and along the south line of said Lot 4 and the south line of said Section 16 for a distance of 1285.95 feet to the South Quarter Corner of the above said Section 16, a 1950 BLM brass cap monument;
THENCE: CONTINUING along the south line of said Section 16 and the south line of Lot 7A and S89°16'56"W for a distance of 1103.22 feet to a point being 30' north of the center of County Road 4450 as existing at the time of this survey;
THENCE: LEAVING said south line of said Section 16 and the south line of said Lot 7A and along the 30' offset line and parallel with the centerline of County Road 4450 the following courses and distances and N63°04'28"W for a distance of 212.59 feet;
THENCE: N63°57'25"W for a distance of 266.82 feet;
THENCE: N70°29'19"W for a distance of 120.73 feet;
THENCE: N75°45'32"W for a distance of 140.34 feet;
THENCE: N78°42'03"W for a distance of 266.08 feet;
THENCE: N78°21'42"W for a distance of 193.41 feet;
THENCE: N75°04'50"W for a distance of 167.74 feet;
THENCE: N72°04'26"W for a distance of 155.5 feet;
THENCE: N64°03'24"W for a distance of 122.95 feet;
THENCE: N55°41'23"W for a distance of 30.25 feet to a point on the west line of said Section 16 and the west line of Lot 6A;
THENCE: LEAVING said 30' offset line and along the west line of said Lot 6A and the west line of said Section 16 and N01°13'31"W for a distance of 778.18 feet to a found rebar with survey cap marked LS 8894, the Northwest Corner of said Lot 6A and the Southwest Corner of said Lot 4A;
THENCE: CONTINUING along the west line of said Section 16 and the west line of Lot 4A and N01°12'58"W for a distance of 1315.84 feet to the West Quarter Corner of the above said Section 16 and the Northwest Corner of said Lot 4A and the Southwest Corner of said Lot 2A, a 1950 BLM brass cap monument;
THENCE: N01°12'26"W and along the west line of said Section 16 and the west line of said Lot 2A for a distance of 1317.01 feet to a found rebar with survey cap marked LS 8894, the Northwest Corner of said Lot 2A and the Southwest Corner of said Lot 1A;
THENCE: CONTINUING along the west line of said Section 16 and the west line of said Lot 1A and N01°10'54"W for a distance of 150.34 feet and back to the south right-of-way line of U.S. Highway 64 and the point of beginning of said tract.
Said tract contains 276.74 acres, more or less, and is subject to any and all easements of record or in existence.

CERTIFICATION

I, George T. Walters, a New Mexico Professional Surveyor certify that I conducted and am responsible for this Boundary Survey Plat, that this Boundary Survey is true and correct to the best of my knowledge and belief, and that this Boundary Survey Plat meets the Minimum Standards for Surveying in New Mexico.
I further certify that this is a boundary of an existing tract and is not a land division or subdivision as defined in the New Mexico Subdivision Act.

George T. Walters
Professional Land Surveyor No. 6159
State of New Mexico

Date

REFERENCE LIST:
OWNERSHIP IS ACCORDING TO THE SAN JUAN COUNTY ASSESSORS OFFICE.
REAL ESTATE CONTRACT IN FAVOR OF SNM PROPERTIES, LLC IN BK 1355 PG 910.
REAL ESTATE CONTRACT IN FAVOR OF SNM PROPERTIES, LLC IN BK 1392 PG 735.
WARRANTY DEED IN FAVOR OF BLANCO LAND, INC. IN BK 1206 PG 401.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 155 PG 463.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 158 PG 27.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 352 PG 256.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 363 PG 273.
RIGHT OF WAY GRANT IN FAVOR OF SOUTHERN UNION GATHERING COMPANY IN BK 926 PG 303.
RIGHT OF WAY AND EASEMENT IN FAVOR OF MERIDIAN OIL GATHERING, INC. IN BK 1123 PG 1021.
RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 1168 PG 234.
BLANCO LAND SUBDIVISION NO.1 RECORDED IN BK 1309 PG 455.
BLANCO LAND SUBDIVISION NO.2 RECORDED IN BK 1322 PG 796.

BASIS OF BEARING: THE BASIS OF BEARING FOR THIS SURVEY IS THE BLANCO LAND SUBDIVISIONS.

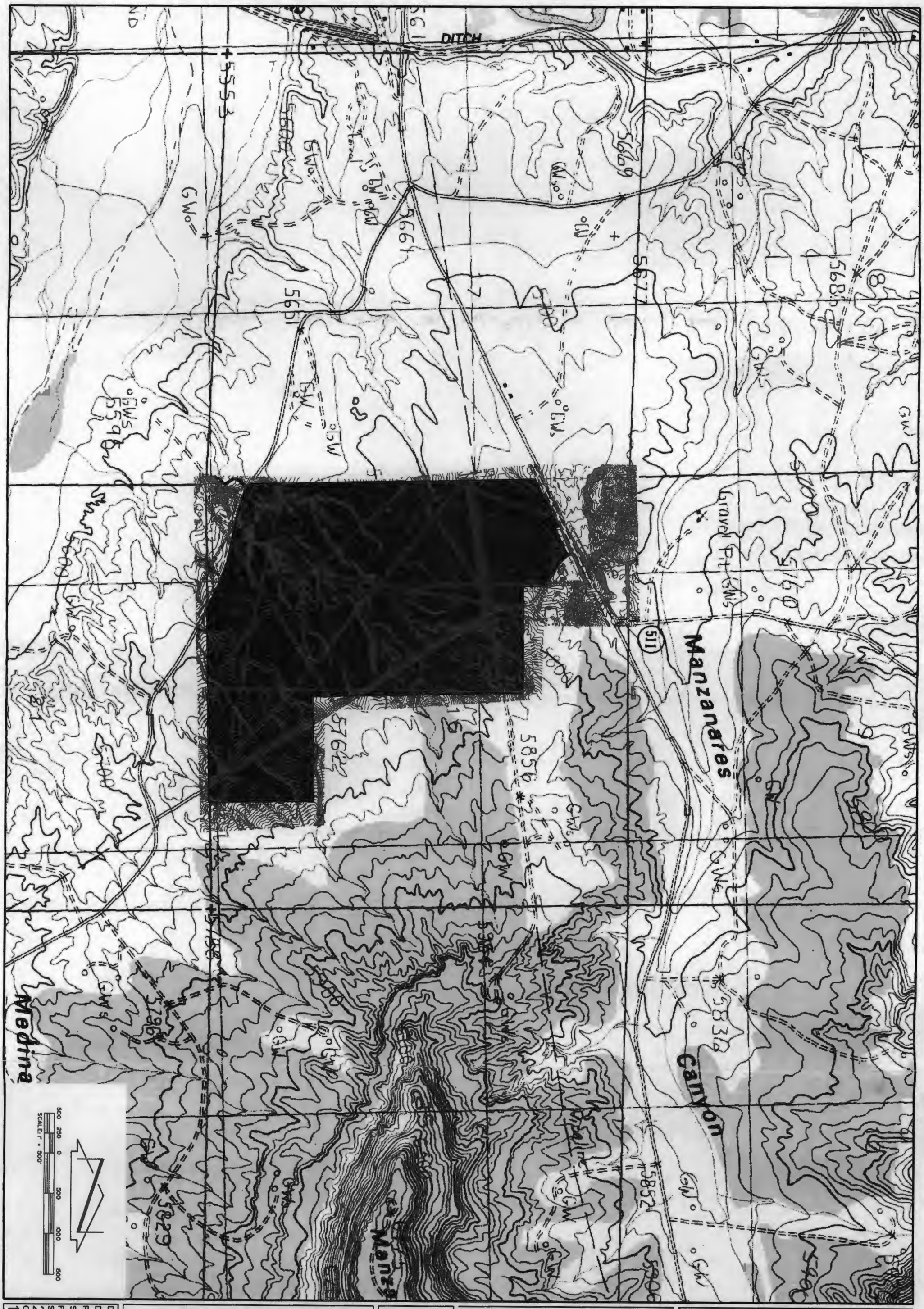
BY	REVISION	DATE

PRINTED: March 29, 2012
FILE: \\GW\GTW (D)\2009GTW\09467\09467NEW.dwg

CHENEY·WALTERS·ECHOLS
ENGINEERS ▲ SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

BOUNDARY SURVEY
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:02/24/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1"= 300'
FILE:09467
SHEET
1
OF
17



SCALE: 1" = 500'
500 250 0 500 1000 1500

ON-SITE OFF-SITE TOPOGRAPHY
CROWE BLANCO PROPERTIES, LLC

OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1"=300'
FILE:09467DRN2
SHEET 2 OF 17

REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR NO. 3634 NEW MEXICO RICHARD P. CHENEY

CHENEY·WALTERS·ECHOLS INC.
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

DATE	REVISION	BY

PRINTED: March 29, 2012
FILE: \\Hws\D\DWG-HWS\2009\09467\09467drn2.dwg

HOMES WITHIN ONE MILE
OF
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
LYING IN SECTION 16,
T29N R09W, N.M.P.M.,
SAN JUAN COUNTY,
BLANCO, NEW MEXICO

ADDRESS KEYED NOTES:

1. ROAD 4445 No. 103 - 507'
2. ROAD 4445 No. 105 - 648'
3. ROAD 4440 No. 46 - 630'
4. ROAD 4440 No. 44 - 651'
5. ROAD 4440 No. 42 - 801'
6. ROAD 4440 No. 41 - 522'
7. ROAD 4440 No. 43 - 609'
8. US HIGHWAY 64 No. 7560 - 591'
9. US HIGHWAY 64 No. 7561 (MANZANERAS COMPRESSION STATION) - 90'-712'
10. ROAD 4460 No. 36 - 3295'
11. ROAD 4460 No. 35 - 3501'
12. US HIGHWAY 64 No. 7437A - 5250'
13. ROAD 4461 No. 18 - 5128'

NOTE:

1. PHOTO IMAGE IS FROM GOOGLE EARTH MAPPING.
2. THE LOCATIONS OF THE KEYED NOTES ON THIS PLAN ARE PER SAN JUAN COUNTY ADDRESSING GPS LOCATIONS.

1000 500 0 1000 2000 3000
SCALE: 1" = 1000'

DATE	REVISION	BY

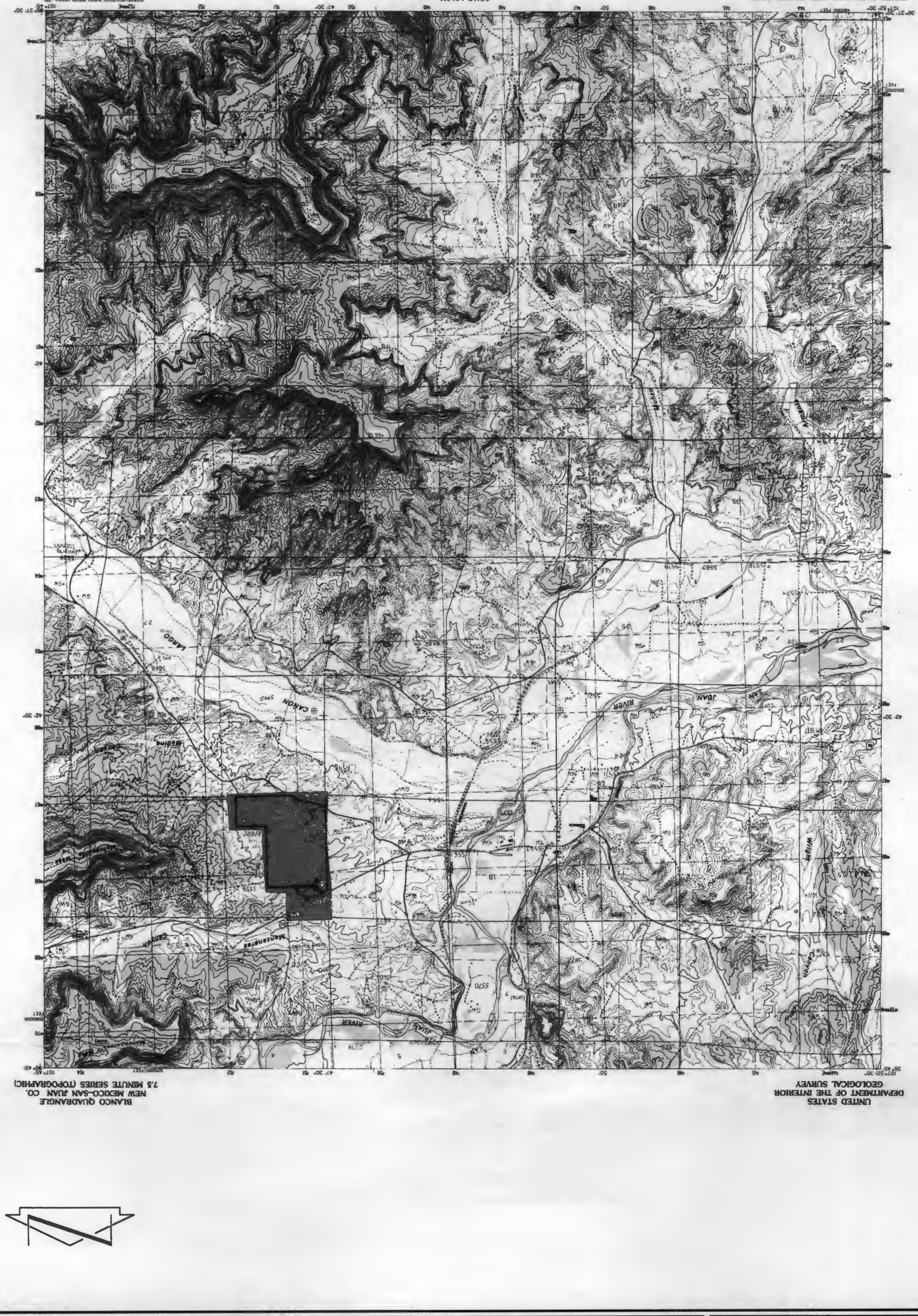
PRINTED: March 29, 2012
FILE: \\Hes\DWG-HWS\2009\09467\9467ONEMILE.dwg

CHENEY·WALTERS·ECHOLS
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

NO. 3634 REGISTERED PROFESSIONAL ENGINEER

HOMES WITHIN ONE MILE
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/29/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1"= 1000'
FILE:09467ONEMILE
SHEET
11
OF
17



DATE: 03/21/2012	OFF-SITE TOPOGRAPHY	CHENEY·WALTERS·ECHOLS INC.
DRAWN BY: LH	CROWE BLANCO PROPERTIES, LLC	ENGINEERS · SURVEYORS
PROJ. 09467	OPERATED BY INDUSTRIAL ECOSYSTEMS	909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303
SCALE:1" = 2000'	BLANCO, NEW MEXICO	
FILE:09467DRN2	REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR NO. 3634 NEW MEXICO RICHARD P. CHENEY	
SHEET 12 OF 17		

DATE	REVISION	BY

PRINTED: March 29, 2012
FILE: \\Hws\D\DWG-HWS\2009\09467\09467drn2.dwg

19.15.36.8.C.3

"We're People Helping People"

Guardian
ABSTRACT & TITLE CO., INC.
221 N. Auburn • Farmington, New Mexico 87401
(505) 325-2895 • FAX (505) 327-1585

MICHAEL L. SMITH, President

09467

July 21, 2009

Cheney-Walters-Echols
909 W. apache
Farmington, NM 87401

ATTN: George T. Walters, P.S.

RE: Adjacent Landowner List Within 1 Mile Of Perimeter Of The Property
Crowe Blanco Properties, LLC
Blanco Land Subdivision No. 1
Lot 4
Blanco Land Subdivision No. 2
Lots 1A, 2A, 3A, 4A, 5A, 6A and 7A
Guardian File 0946267

Gentlemen:

Referring to the captioned matter, we enclose a list of the owners and their addresses pursuant to the San Juan County Records, excluding roadways and alleys. Since the width of the roads is unknown, all roadways were measured 100' feet wide. We certify the attached list to be completed and accurate as to such owners and their addresses according to the records of the San Juan County Clerk through July 20, 2009 at 5:00 p.m.

We trust this information will be sufficient for your purpose. Our invoice number 13225R is also enclosed. If you have any question concerning this matter, please do not hesitate to contact us.

Sincerely,

Cheryl Hewitt

CH/s

Enclosures

WARRANTY DEED

SNM Properties, LLC, a New Mexico Limited Liability Company, for consideration paid, grant to Crowe Blanco Properties, LLC, a New Mexico Limited Liability Company, whose address is , 4050 Pennsylvania Ave., Ste. 215, Kansas City, MO 64111, the following described real estate in SAN JUAN County, New Mexico:

Lot Four (4) of the BLANCO LAND SUBDIVISION NO. 1, San Juan County, New Mexico, as shown on the Plat of said Subdivision filed for record September 26, 2000 in Book 1309, page 455, records of said County.

AND

Lot(s) One A (1A), Two A (2A), Three A (3A), Four A (4A), Five A (5A), Six A (6A) of the BLANCO LAND SUBDIVISION NO. 2, San Juan County, New Mexico, as shown on the Plat of said Subdivision filed for record May 30, 2001 in Book 1322, page 796, records of said County.

Subject to patent reservations, restrictions, and easements of record and taxes for the year 2009 and subsequent years.

with warranty covenants.

WITNESS our hands and seals this 11th day of June, 2009.

SNM Properties, LLC
By: Brad Magee, Managing Member

200908593 06/12/2009 11:43 AM
1 of 1 B1495 P99 R $39.00
San Juan County, NM DEBBIE HOLMES

SAN JUAN COUNTY COUNTY CLERK STATE OF NEW MEXICO

AR

Individual Capacity:

State of New Mexico)
) SS.
County of San Juan)

This instrument was acknowledged before me on the 11th day of June, 2009, by Brad Magee, Managing Member of and on behalf of SNM Properties, LLC, a New Mexico Limited Liability Company.

My commission expires: March 18, 2010

Notary Public

(Seal)

GREGORY HOEFER NOTARY PUBLIC STATE OF NEW MEXICO

WARRANTY DEED

Brad D. Magee and Marcia A. Magee, husband and wife

, for consideration paid, grant to

Crowe Blanco Properties, LLC, a New Mexico Limited Liability Company,
whose address is 4050 Pennsylvania Ave., Suite 215, Kansas City, MO 64111

the following described real estate in SAN JUAN County, New Mexico:

Lot Seven A (7A) of the BLANCO LAND SUBDIVISION NO. 2, San Juan County, New Mexico, as shown on the Plat of said Subdivision filed for record May 30, 2001 in Book 1322, page 796, records of said County.

Subject to patent reservations, restrictions, and easements of record and taxes for the year 2009 and subsequent years.

with warranty covenants.

WITNESS our hands and seals this 11th day of June, 2009.

Brad D. Magee

Marcia A. Magee

200908592 06/12/2009 11:43 AM
1 of 1 B1495 P98 R $9.00
San Juan County, NM DEBBIE HOLMES

SAN JUAN COUNTY COUNTY CLERK STATE OF NEW MEXICO

AR

Individual Capacity:

State of New Mexico)
) SS.
County of San Juan)

This instrument was acknowledged before me on the 11th day of June, 2009, by Brad D. Magee and Marcia A. Magee, husband and wife.

My commission expires: March 18, 2010

Notary Public

(Seal)

GREG F. HOEFER NOTARY PUBLIC STATE OF NEW MEXICO

GUARDIAN ABSTRACT & TITLE CO., INC.
221 NORTH AUBURN
FARMINGTON, NEW MEXICO 87401

PROPERTY OWNERS WITHIN 1 MILE, EXCLUDING ROADWAYS AND ALLEYS OF THE FOLLOWING DESCRIBED PROPERTY: ***Blanco Land Subdivlsion No. 1, Lot 4, and Blanco Land Subdivision No. 2, Lots 1A, 2A, 3A, 4A, 5A, 6A and 7A.***

OWNER: Crowe Blanco Properties, LLC
4050 Pennsylvania Ave., Ste. 215
Kansas City, MO 64111
1495/98 and 1495/99

ADJOINING OWNER	ADDRESS	LEGAL DESCRIPTION
Chavez, Dennis O. and Maria Emma, Living Trust 1236/424, 1236/426, 1491/672 1328/175, 1328/176	288 Road 4800 Bloomfield, NM 87413-9203	T29N, R9W, Sec. 18 Pt. NE1/4NE1/4 T29N, R9W, Sec. 9 Pt. NE1/4NW1/4
Yeager, James G. and Beatrice V. 1154/947	P.O. Box 611 Blanco, NM 87412-7412	T29N, R9W, Sec. 18 Pt. NE1/4NE1/4
Sieg, Susan K. 1164/202	P.O. Box 480 Blanco, NM 87412-7412	T29N, R9W, Sec, 18 Pt. NE1/4NE1/4
Martinez, Theresa R. 1451/444, 1469/755	2108 Surrey Rd. Sacramento, CA 95815-3409	T29N, R9W, Sec. 7 Pt. SE1/4SE1/4
Holcomb, William and Sharron 1392/247	P.O. Box 2058 Farmington, NM 87499-7499	T29N, R9W, Sec. 7 Pt. SE1/4SE1/4
Travis, David Z. and Sally A. 1292/369, 1293/34	P.O. Box 607 Blanco, NM 87412-7412	T29N, R9W, Sec. 7 Pt. SE1/4SE1/4
Hircock, Eric and Virginia Nickels 1316/839, 1318/347	P.O. Box 613 Blanco, NM 87412-0613	T29N, R9W, Sec. 7 Pt. SE1/4SE1/4

Hawthorne, Doris E. 1452/739	P.O. Box 305 Blanco, NM 87412-7412	T29N, R9W, Sec. 7 Pt. NE1/4SE1/4 T29N, R9W, Sec. 8 Pt. NW1/4SW1/4
Valencia, Johnny 1130/610	P.O. Box 475 Blanco, NM 87412-0475	T29N, R9W, Sec. 8 Pt. NW1/4SW1/4
Atencio, Esther 1065/124	P.O. Box 1295 Aztec, NM 87410-1295	T29N, R9W, Sec. 8 Pt. NE1/4SW1/4
Martinez, Debbie 1211/349	P.O. Box 402 Blanco, NM 87412-0402	T29N, R9W, Sec. 8 Pt. NW1/4SW1/4
Chavez, Mary Rodriquez, Frances J. 1243/214, 1477/973	P.O. Box 392 Blanco, NM 87412-0392	T29N, R9W, Sec. 8 Pt. NW1/4SW1/4
Montoya, Joe 1452/1027	HC 71 Box 15 Dulce, NM 87528-7528	T29N, R9W, Sec. 8 Pt. SW1/4
Valencia, Seledonio and Orie (Oralia) 1054/425, 1233/668	P.O. Box 233 Bloomfield, NM 87413-0233	T29N, R9W, Sec. 8 Pt. SW1/4
Hood, John N. and Julie A. 1371/55	P.O. Box 482 Blanco, NM 87412-7412	T29N, R9W, Sec. 8 Pt. NE1/4SW1/4
Wood, Annette 1211/998	4708 Sundance Tr. NW Albuquerque, NM 87420-7420	T29N, R9W, Sec. 8 Pt. NE1/4SW1/4
Chavez, Koggie 1211/655	8841 Grove St. Westminster, CO 80030-3328	T29N, R9W, Sec. 8 Pt. NE1/4SW1/4
New Mexico State Game Commission 1078/472	P.O. Box 25112 Santa Fe, NM 87504-7504	T29N, R9W, Sec. 8 NW1/4NE1/4

Archuleta, Milton J. and Lucy, Trustees 1060/205	330 Road 4599 Blanco, NM 87412-9730	T29N, R9W, Sec. 8 NE1/4NE1/4
Gurule, Cristobal S. and Carlota F. 1495/57	ATTN: Michael Gurule P.O. Box 393 Blanco, NM 87412-7412	T29N, R9W, Sec. 9 Pt. NW1/4NW1/4
Jeter, Larry A. and Patricia D. 1417/928	P.O. Box 506 Blanco, NM 87412-7412	T29N, R9W, Sec. 9 Pt. NE1/4NW1/4
Witcombe, Lisa Murray, Billy Jack 1474/965	P.O. Box 6393 Farmington, NM 87499-7499	T29N, R9W, Sec. 9 Pt. NE1/4NW1/4
Farmington Investment Co. Hutton, Katherine K. Porter, Kathryn, Custodian 863/412, 763/57, 1204/1066	P.O. Box 229 Farmington, NM 87499-0229	T29N, R9W, Sec. 9 NE1/4NW1/4
Bolack, Tommy 1478/732	3901 Bloomfield Hwy Farmington, NM 87401-7401	Michael E. Atchison Subdivision No. 1 Lot 1, 2, 4, 5 T29N, R9W, Sec. 16 Pt. NE1/4NW1/4
Atchison, Michael E. 1486/964	P.O. Box 537 Blanco, NM 87412-7412	Michael E. Atchison Subdivision No. 1 Lot 3
Price, Michael D. 1298/336	P.O. Box 5 Flora Vista, NM 87415-7415	Blanco Land Subdivision No. 1 Lot 1
Castro, Alfred R. and Elvera 1290/842	P.O. Box 571 Blanco, NM 87412-7412	T29N, R9W, Sec. 16 NW1/4NE1/4
Adams, William J. and Sondra A. 1278/14	P.O. Box 28093 Santa Fe, NM 87592-8093	T29N, R9W, Sec. 16 NE1/4NE1/4

Joiner, David W. and Nancy S. Waggoner, Jeff W. and Deena A. 1220/32	P.O. Box 570 Blanco, NM 87412-0570	T29N, R9W, Sec. 16 SW1/4NE1/4
Prado, Ralph 1404/863, 1411/400	6784 US 64 Bloomfield, NM 87413-7413	T29N, R9W, Sec. 16 SE1/4NE1/4
Prado, Ralph 1411/400	1624 US 64 Bloomfield, NM 87413-7413	Blanco Land Subdivision No. 1 Lot 3
Prouse, Bradley D. and Wendy R. 1454/197	23259 CR G2 Cortez, CO 81321-1321	Blanco Land Subdivision No. 1 Lot 2
Bolli, Richard E. and Joellen M. 1469/943	P.O. Box 579 Blanco, NM 87412-0579	T29N, R9W, Sec. 16 SE1/4SE1/4
El Paso Field Services Company 1296/5, 1305/176	ATTN: Enterprise Property Tax P.O. Box 4018 Houston, TX 77210-4324	T29N, R9W, Sec. 17 Pt. SE1/4NE1/4
San Juan County 1116/693	100 S. Oliver Dr. Aztec, NM 87410-2400	T29N, R9W, Sec. 17 Pt. NW1/4NW1/4
Baca, Larry R. and Nora J. 1425/808	P.O. Box 617 Blanco, NM 87412-7412	T29N, R9W, Sec. 18 Pt. SE1/4SE1/4
Baca, Patricia J. Baca, Larry R. and Nora J. 1427/248	2503 Schofield Ln. Farmington, NM 87401-7401	T29N, R9W, Sec. 18 Pt. SE1/4SE1/4
Chavez, Jose F. and Loyola E., Revocable Living Trust 1273/134	3409 Northridge Court Farmington, NM 87401-7401	T29N, R9W, Sec. 18 Pt. SE1/4SE1/4
Baca, Larry R. and Nora J. 1425/809	P.O. Box 617 Blanco, NM 87412-7412	T29N, R9W, Sec. 18 Pt. SE1/4SE1/4

Arrighetti, Richard F. and Tina M. 1318/765	1200 Florida NE Albuquerque, NM 87110-7110	T29N, R9W, Sec. 18 Pt. NE1/4SE1/4
Naranjo, Victor R. and Michelle F. 1318/764	P.O. Box 553 Blanco, NM 87412-7412	T29N, R9W, Sec. 18 Pt. NE1/4SE1/4
Valencia, Ernest D. 1160/250, 1238/311	P.O. Box 347 Blanco, NM 87412-0461	T29N, R9W, Sec. 18 Pt. NE1/4SE1/4 Pt. SE1/4NE1/4
Valencia, Ernest D. 1442/562	P.O. Box 347 Blanco, NM 87412-7412	T29N, R9W, Sec. 18 Pt. NE1/4SE1/4
United States Of America (Federal Lands)	1235 La Plata Hwy Farmington, NM 87401 (Per Phone Book)	T29N, R9W, Sec. 17 SW1/4, SE1/4, Pt. NW1/4, Pt. NE1/4 T29N, R9W, Sec. 8 S1/2SW1/4, SE1/4, SE1/4NW1/4, S1/2NE1/4 T29N, R9W, Sec. 9 S1/2NW1/4, Pt. NE1/4, SW1/4, SE1/4 T29N, R9W, Sec. 10 NW1/4, SW1/4, SE1/4 T29N, R9W, Sec. 15 ALL T29N, R9W, Sec. 22 ALL T29N, R9W, Sec. 21 ALL T29N, R9W, Sec. 27 NW1/4 T29N, R9W, Sec. 28 NE1/4, NW1/4 T29N, R9W, Sec. 29 NE1/4 T29N, R9W, Sec. 20 ALL T29N, R9W, Sec. 19 NE1/4

Facility Description & Diagram
(19.15.36.8.C.4 NMAC)

The facility consists of 206 +- (permitted) acres and is contained with a four (4) foot field fence topped with barbed wire.

Entrance/Exit for the facility will be gained through gates which will remain locked when the facility is not in operation and/or when there are no personnel on the facility.

The office will be located at the entrance of the facility to monitor all incoming and outgoing traffic.

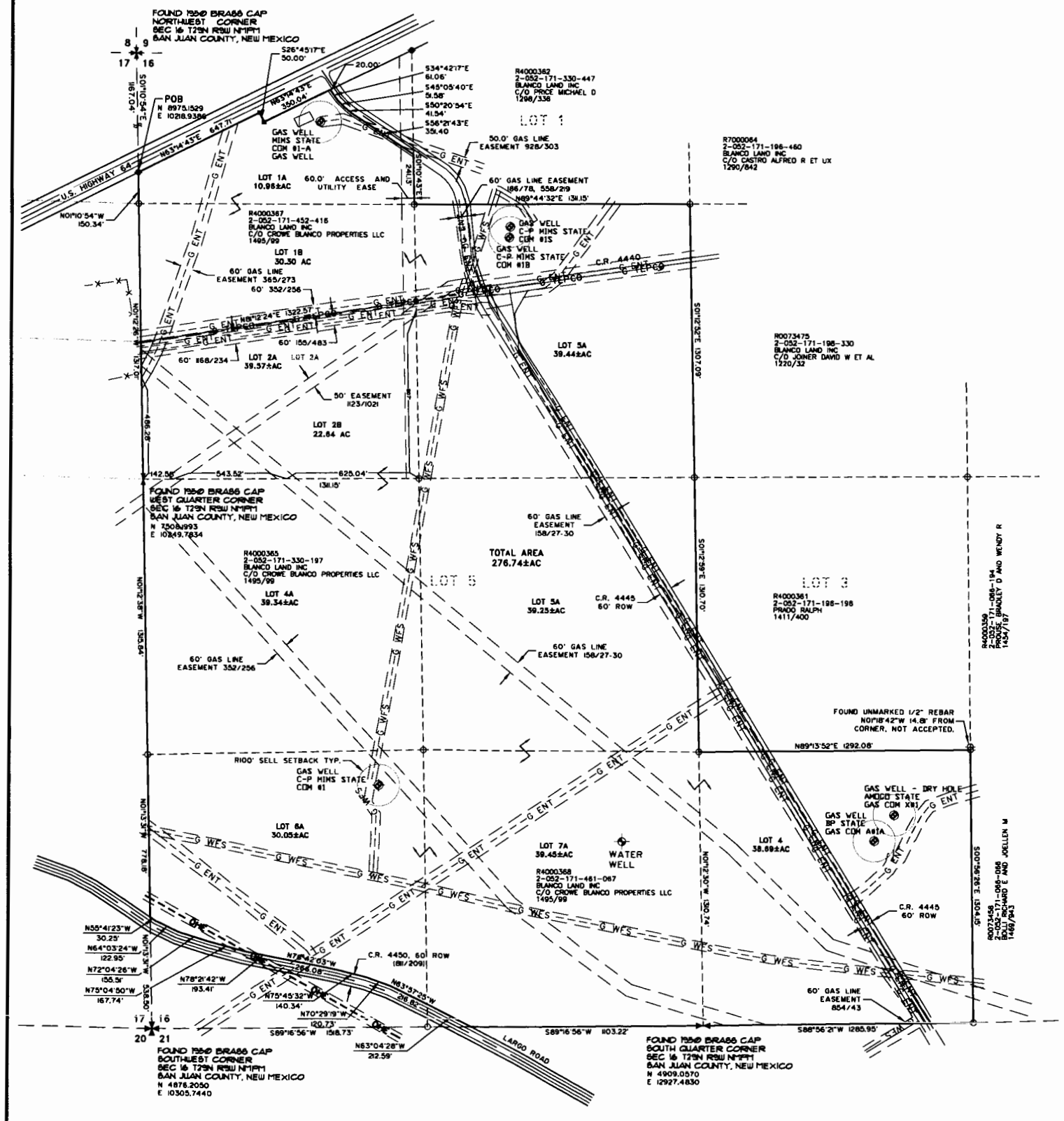
Interior roads will be developed within the facility to provide access for personnel, transporters and visitors.

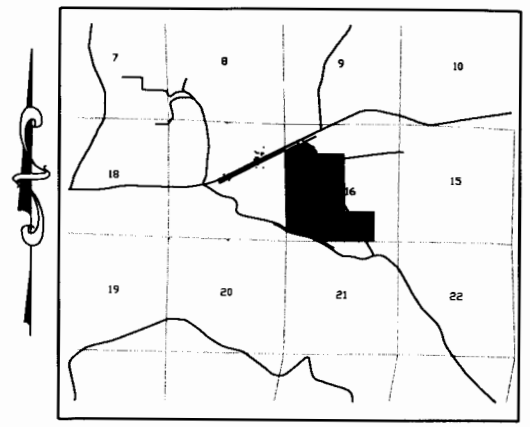
The "Processing Area" will be contained within a six (6) foot chain-link fence to prevent unauthorized access. The area will be lined and will also be bermed to contain 1 1/3 the volume of the largest tank or all interconnected tanks.

Also refer to Binder Section 19.15.36.8.C.5 – Engineering Designs

BOUNDARY SURVEY PLAT

For Crowe Blanco Properties, LLC
Land Farm Permit
Lot 4 of the Blanco Land Subdivision No.1
as recorded in Book 1309, page 455
and part of Lot 1A, Lots 2A thru 5A and a portion of Lots 6A and 7A
of the Blanco Land Subdivision No.2
as recorded in Book 1322, page 796
and lying in the
W1/2 and the SW1/4 SE1/4 of Section 16, T29N R09W, N.M.P.M.
San Juan County, New Mexico
Operated by: Industrial Ecosystems, Inc.





VICINITY MAP
(nts)

LEGEND

- G WFS = WILLIAMS FIELD SERVICES GAS LINE
- G ENT = ENTERPRISE GAS LINE
- G TEPCO = TEPCO GAS LINE
- = SECTION CORNER AS NOTED
- = QUARTER CORNER AS NOTED
- O = SET 1/2" REBAR W/CAP LS 6159
- = FOUND REBAR W/SURVEY CAP 8894 UNLESS NOTED OTHERWISE.
- = NMY DEPT BRASS CAP R/W MON

1" = 300'

300 150 0 300 600 900

SCALE: 1" = 300'

DESCRIPTION

A tract of land being Lot 4 of the Blanco Land Subdivision No. 1 as recorded in Book 1309, page 455 and Lots 1A through 7A of Blanco Land Subdivision No. 2 as recorded in Book 1322, page 796, also lying in the West Half (W1/2) and the Southwest Quarter of the Southwest Quarter (SW1/4 SW1/4) of Section 16, T29N, R9W, N.M.P.M., San Juan County, New Mexico, being more particularly described as follows:

COMMENCING at the Northwest Corner of the above said Section 16;

THENCE: S01°10'54"E and along the west line of said Section 16 for a distance of 867.04 feet to a point of intersection with the south right-of-way line of U.S. Highway 64 and the Northwest Corner of the above said Lot 1A and the Point of Beginning of said tract;
THENCE: NORTHEASTERLY and along the north line of the above said Lot 1A and the south line of U.S. Highway 64 the following courses and distances and N63°14'43"E for a distance of 647.71 feet;
THENCE: S26°45'17"E for a distance of 50.00 feet;
THENCE: N63°14'43"E for a distance of 350.04 feet to a point 20' southwest of the centerline of County Road 4445 as existing at the time of this survey;
THENCE: LEAVING said south line of U.S. Highway 64 and the north line of Lot 1A and along the 20' offset line and parallel with the centerline of County Road 4445 the following courses and distances and S34°42'17"E for a distance of 61.06 feet;
THENCE: S45°05'40"E for a distance of 9.58 feet;
THENCE: S50°20'54"E for a distance of 41.54 feet;
THENCE: S56°21'43"E for a distance of 35.40 feet to a point on the east line of said Lot 1A;
THENCE: LEAVING said 20' offset line and along the east line of said Lot 1A and S01°10'43"E for a distance of 241.13 feet to a found rebar with survey cap marked LS 8894 at the Southeast Corner of the above said Lot 1A and the Northeast Corner of the above said Lot 3A;
THENCE: N89°44'32"E and along the north line of said Lot 3A for a distance of 1341.15 feet to a found rebar with survey cap marked LS 8894 at the Northeast Corner of said Lot 3A;
THENCE: S01°12'52"E and along the east line of said Lot 3A for a distance of 1307.09 feet to a found rebar with survey cap marked LS 8894 at the Southeast Corner of said Lot 3A and the Northeast Corner of the above said Lot 5A;
THENCE: S01°12'59"E and along the east line of said Lot 5A for a distance of 1310.70 feet to a found rebar with survey cap marked LS 8894 at the Southeast Corner of the above said Lot 5A and the Northeast Corner of said Lot 4;
THENCE: N89°13'52"E and along the north line of said Lot 4 for a distance of 1292.08 feet to a found rebar with survey cap marked LS 8894 at the Northeast Corner of said Lot 4;
THENCE: S00°56'26"E and along the east line of said Lot 4 for a distance of 1304.15 feet to a found rebar with survey cap marked LS 8894 and a point on the south line of the above said Section 16 and the Southeast Corner of said Lot 4;
THENCE: S88°56'21"W and along the south line of said Lot 4 and the south line of said Section 16 for a distance of 1285.95 feet to the South Quarter Corner of the above said Section 16, a 1950 BLM brass cap monument;
THENCE: CONTINUING along the south line of said Section 16 and the south line of Lot 7A and S89°16'56"W for a distance of 1103.22 feet to a point being 30' north of the center of County Road 4450 as existing at the time of this survey;
THENCE: LEAVING said south line of said Section 16 and the south line of said Lot 7A and along the 30' offset line and parallel with the centerline of County Road 4450 the following courses and distances and N63°04'28"W for a distance of 212.59 feet;
THENCE: N63°57'25"W for a distance of 216.82 feet;
THENCE: N70°29'19"W for a distance of 120.73 feet;
THENCE: N75°45'32"W for a distance of 140.34 feet;
THENCE: N78°42'03"W for a distance of 266.08 feet;
THENCE: N78°21'42"W for a distance of 193.41 feet;
THENCE: N75°04'50"W for a distance of 167.74 feet;
THENCE: N72°04'26"W for a distance of 155.5 feet;
THENCE: N64°03'24"W for a distance of 122.95 feet;
THENCE: N55°41'23"W for a distance of 30.25 feet to a point on the west line of said Section 16 and the west line of Lot 6A;
THENCE: LEAVING said 30' offset line and along the west line of said Lot 6A and the west line of said Section 16 and N01°13'31"W for a distance of 778.18 feet to a found rebar with survey cap marked LS 8894, the Northwest Corner of said Lot 6A and the Southwest Corner of said Lot 4A;
THENCE: CONTINUING along the west line of said Section 16 and the west line of Lot 4A and N01°12'38"W for a distance of 1315.84 feet to the West Quarter Corner of the above said Section 16 and the Northwest Corner of said Lot 4A and the Southwest Corner of said Lot 2A, a 1950 BLM brass cap monument;
THENCE: N01°12'26"W and along the west line of said Section 16 and the west line of said Lot 2A for a distance of 1317.01 feet to a found rebar with survey cap marked LS 8894, the Northwest Corner of said Lot 2A and the Southwest Corner of said Lot 1A;
THENCE: CONTINUING along the west line of said Section 16 and the west line of said Lot 1A and N01°10'54"W for a distance of 150.34 feet and back to the south right-of-way line of U.S. Highway 64 and the point of beginning of said tract.
Said tract contains 276.74 acres, more or less, and is subject to any and all easements of record or in existence.

CERTIFICATION

I, George T. Walters, a New Mexico Professional Surveyor certify that I conducted and am responsible for this Boundary Survey Plat, that this Boundary Survey is true and correct to the best of my knowledge and belief, and that this Boundary Survey Plat mee s the Minimum Standards for Surveying in New Mexico.
I further certify that this is a boundary at an existing tract and is not a land division or subdivision as defined in the New Mexico Subdivision Act.

GEORGE T. WALTERS NEW MEXICO 6159 REGISTERED PROFESSIONAL SURVEYOR

George T. Walters — Date
Professional Land Surveyor No. 6159
State of New Mexico

REFERENCE LIST:
OWNERSHIP IS ACCORDING TO THE SAN JUAN COUNTY ASSESSORS OFFICE.
REAL ESTATE CONTRACT IN FAVOR OF SNM PROPERTIES, LLC IN BK 1355 PG 910.
REAL ESTATE CONTRACT IN FAVOR OF SNM PROPERTIES, LLC IN BK 1392 PG 735.
WARRANTY DEED IN FAVOR OF BLANCO LAND, INC. IN BK 1206 PG 401.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 155 PG 483.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 158 PG 27.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 352 PG 256.
PERMIT FOR RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 365 PG 273.
RIGHT OF WAY GRANT IN FAVOR OF SOUTHERN UNION GATHERING COMPANY IN BK 928 PG 303.
RIGHT OF WAY AND EASEMENT IN FAVOR OF MERIDIAN OIL GATHERING, INC. IN BK 623 PG 1021.
RIGHT OF WAY AND EASEMENT IN FAVOR OF EL PASO NATURAL GAS COMPANY IN BK 168 PG 234.
BLANCO LAND SUBDIVISION NO.1 RECORDED IN BK 1309 PG 455.
BLANCO LAND SUBDIVISION NO.2 RECORDED IN BK 1322 PG 796.

BASIS OF BEARING: THE BASIS OF BEARING FOR THIS SURVEY IS THE BLANCO LAND SUBDIVISIONS.

DATE	REVISION	BY

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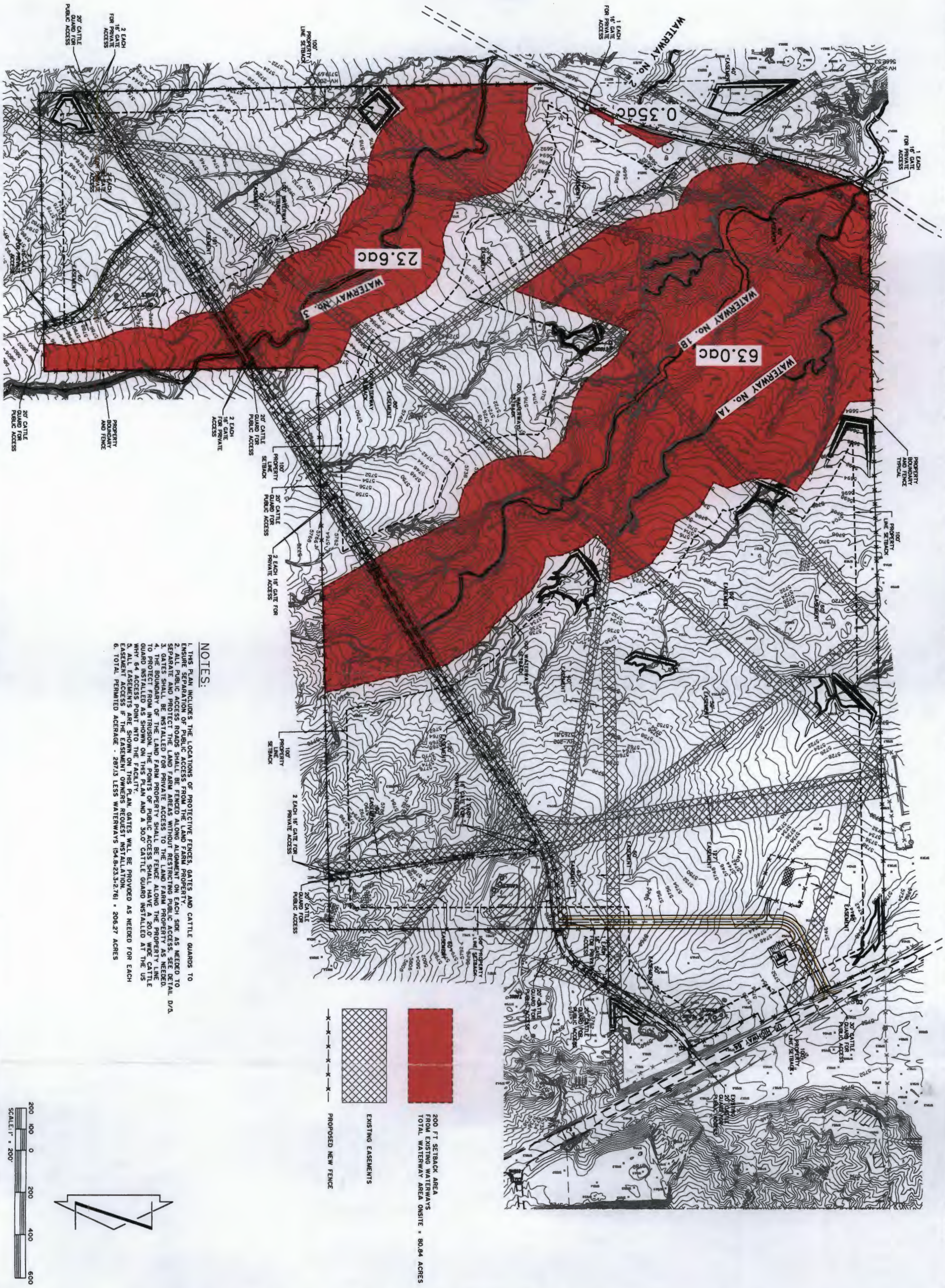
CHENEY·WALTERS·ECHOLS
ENGINEERS ▲ SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

BOUNDARY SURVEY
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE: 02/24/2012
DRAWN BY: LH
PROJ. 09467
SCALE: 1" = 300'
FILE: 09467
SHEET 1 OF 17



NOTES:

1. THIS PLAN INCLUDES THE LOCATIONS OF PROTECTIVE FENCES, GATES AND CATTLE GUARDS TO ENSURE SEPARATION OF PUBLIC ACCESS FROM THE LAND FARM PROPERTY.
2. ALL PUBLIC ACCESS ROADS SHALL BE FENCED ALONG ALIGNMENT ON EACH SIDE AS NEEDED TO SEPARATE AND PROTECT THE LAND FARM AREAS WITHOUT RESTRICTING PUBLIC ACCESS. SEE DETAIL D/5.
3. GATES SHALL BE INSTALLED FOR PRIVATE ACCESS TO THE LAND FARM PROPERTY AS NEEDED.
4. THE BOUNDARY OF THE LAND FARM PROPERTY SHALL BE FENCE ALONG THE PROPERTY LINE TO PROTECT FROM INTRUSION. THE POINTS OF PUBLIC ACCESS SHALL HAVE A 20.0' WIDE CATTLE GUARD INSTALLED AS SHOWN ON THIS PLAN AND A 30.0' CATTLE GUARD INSTALLED AT THE US WHY 64 ACCESS POINT INTO THE FACILITY.
5. ALL EASEMENTS ARE SHOWN ON THIS PLAN. GATES WILL BE PROVIDED AS NEEDED FOR EACH EASEMENT ACCESS IF THE EASEMENT OWNERS REQUEST INSTALLATION.
6. TOTAL PERMITED ACERAGE - 287.13 LESS WATERWAYS (54.8+23.3+2.76) = 206.27 ACRES

DATE:03/29/2012
DRAWN BY: LH
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SCALE:1"=200'
FILE:09467DRN2
SHEET 3 OF 17

ON-SITE WATERWAYS AND SETBACKS
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR NO. 3634 NEW MEXICO RICHARD P. CHENEY

CHENEY·WALTERS·ECHOLS INC.
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

DATE	REVISION	BY

PRINTED: March 29, 2012
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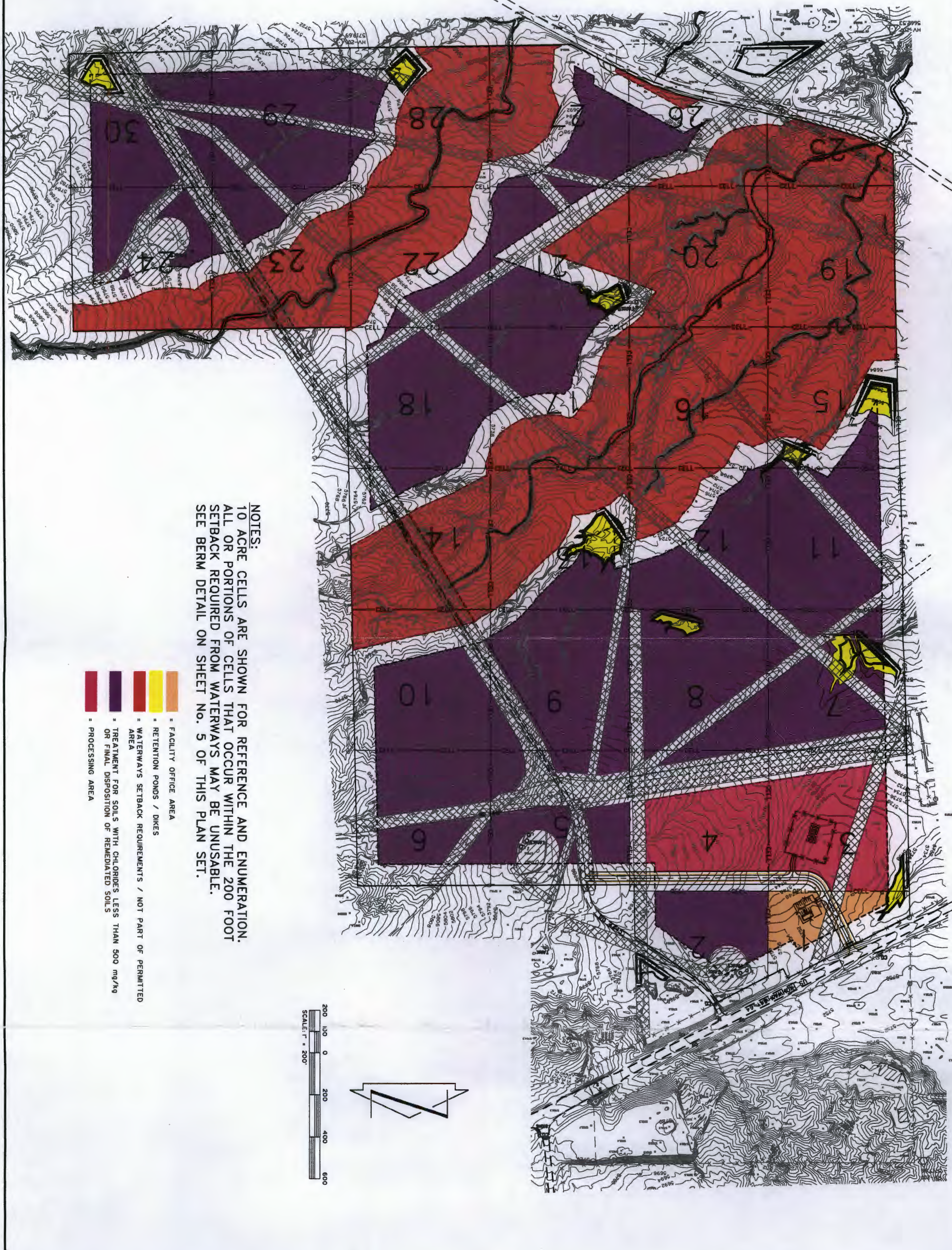
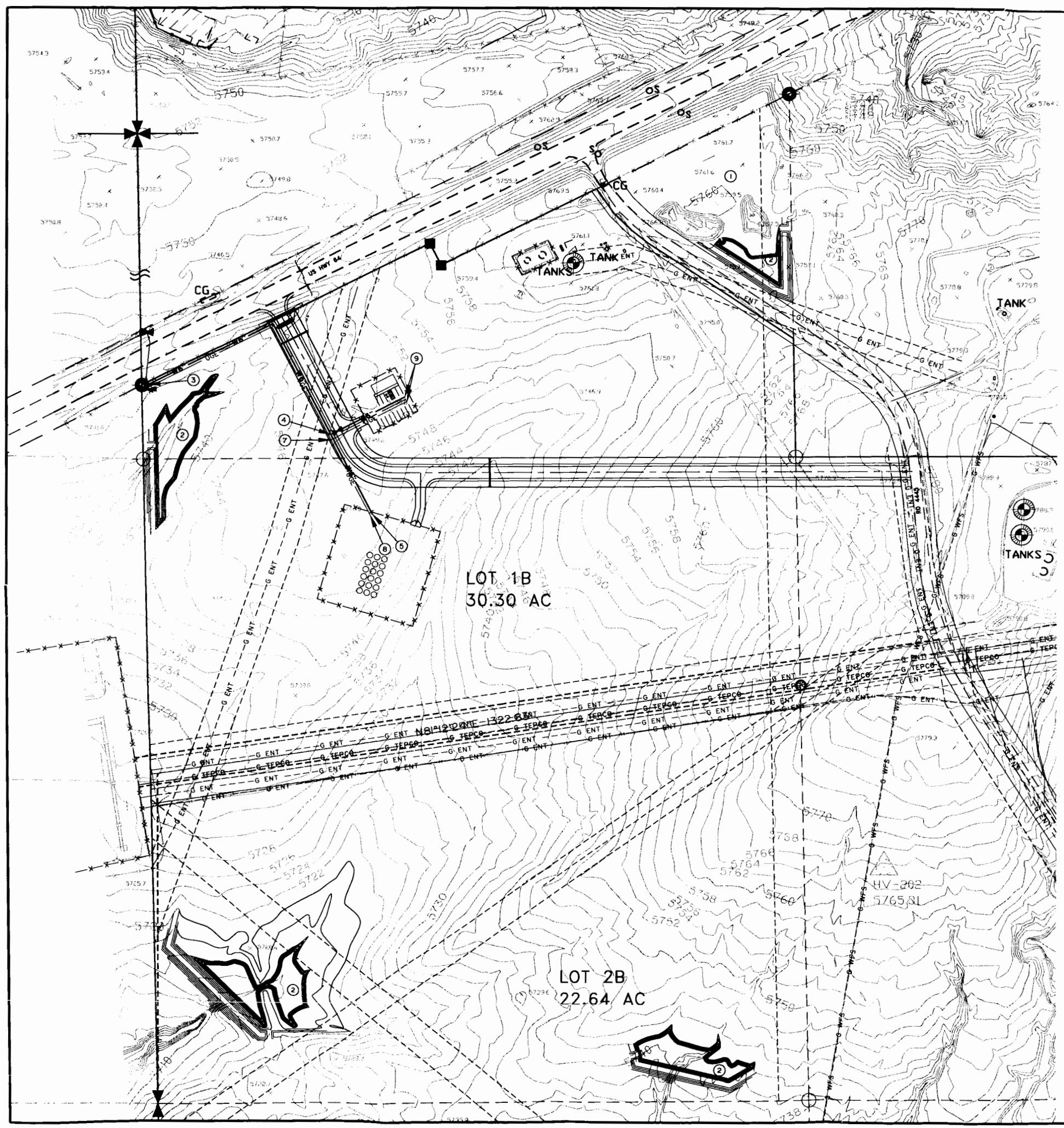


NOTES:
10 ACRE CELLS ARE SHOWN FOR REFERENCE AND ENUMERATION. ALL OR PORTIONS OF CELLS THAT OCCUR WITHIN THE 200 FOOT SETBACK REQUIRED FROM WATERWAYS MAY BE UNUSABLE. SEE BERM DETAIL ON SHEET No. 5 OF THIS PLAN SET.

- = FACILITY OFFICE AREA
- = RETENTION PONDS / DIKES
- = WATERWAYS SETBACK REQUIREMENTS / NOT PART OF PERMITTED AREA
- = TREATMENT FOR SOILS WITH CHLORIDES LESS THAN 500 mg/kg OR FINAL DISPOSITION OF REMEDIATED SOILS
- = PROCESSING AREA

DATE: 03/29/2012 DRAWN BY: LH PROJ. 09467 SCALE: 1" = 200' FILE: 09467drn2 SHEET 6 OF 17	10 ACRE CELL MAP CROWE BLANCO PROPERTY LLC OPERATED BY INDUSTRIAL ECOSYSTEMS BLANCO, NEW MEXICO	REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR NO. 3634 NEW MEXICO RICHARD P. CHENEY	CHENEY-WALTERS-ECHOLS INC. ENGINEERS · SURVEYORS 909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303	PRINTED: March 29, 2012 FILE: \\Hws\D\DWG-HWS\2009\09467\09467drn2.dwg

DATE	REVISION	BY



KEYED NOTES:

1. THE AREA SET ASIDE FOR WATER SHALL BE EXCLUDED FROM ANY CONSTRUCTION.
2. STORM WATER RETENTION POND DIKES TYPICAL. SEE SHEET 5 AND 6 FOR SPECIFICATIONS.
3. INSTALL 536.0'± 6"ø CLASS 200 PVC WATER LINE. CONNECT TO EXISTING 6"ø WATER LINE AT NORTHWEST CORNER OF PROPERTY.
4. INSTALL 6"x6"x6" TEE WITH 1 - 6" VALVE IN VALVE BOX.
5. EXTEND 186.0'± NEW 6"ø TO FENCE LINE OF TANK BATTERY AREA FOR FUTURE USE.
6. INSTALL 536.0'± OF UNDERGROUND ELECTRICAL CONDUIT TO BE SIZED BY THE CITY OF FARMINGTON ELECTRICAL COMPANY.
7. INSTALL APPROVED UNDERGROUND ELECTRICAL JUNCTION BOX.
8. EXTEND 172.0'± NEW UNDERGROUND ELECTRICAL CONDUIT TO FENCE LINE OF TANK BATTERY AREA.
9. CONTRACTOR TO EXTEND BOTH WATER AND UNDERGROUND ELECTRICAL SERVICE TO PROPOSED BUILDING AREA AS DIRECTED BY THE OWNER.

NOTE:

1. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY CROSSINGS AND COORDINATE WITH EACH UTILITY OPERATOR PRIOR TO INSTALLATION OF NEW UTILITIES.

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ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

NEW MEXICO PROFESSIONAL ENGINEER
NO. 3634
RICHARD P. CHENEY

OPERATION FACILITY SITE PLAN
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/21/2012
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SCALE:1" = 100'
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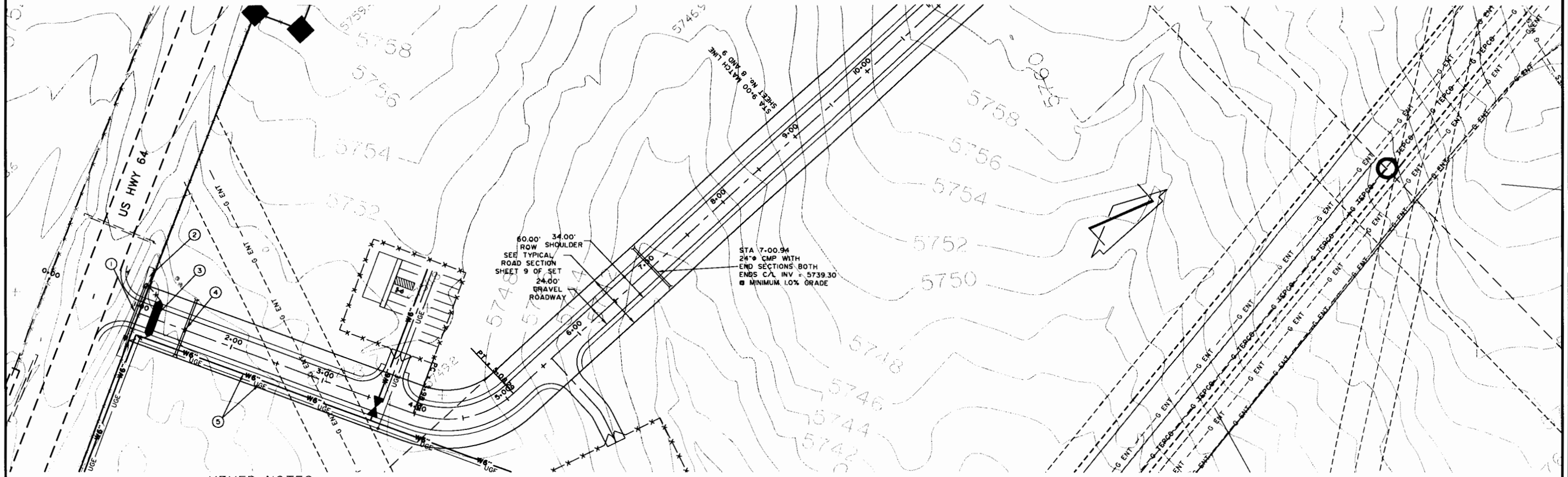
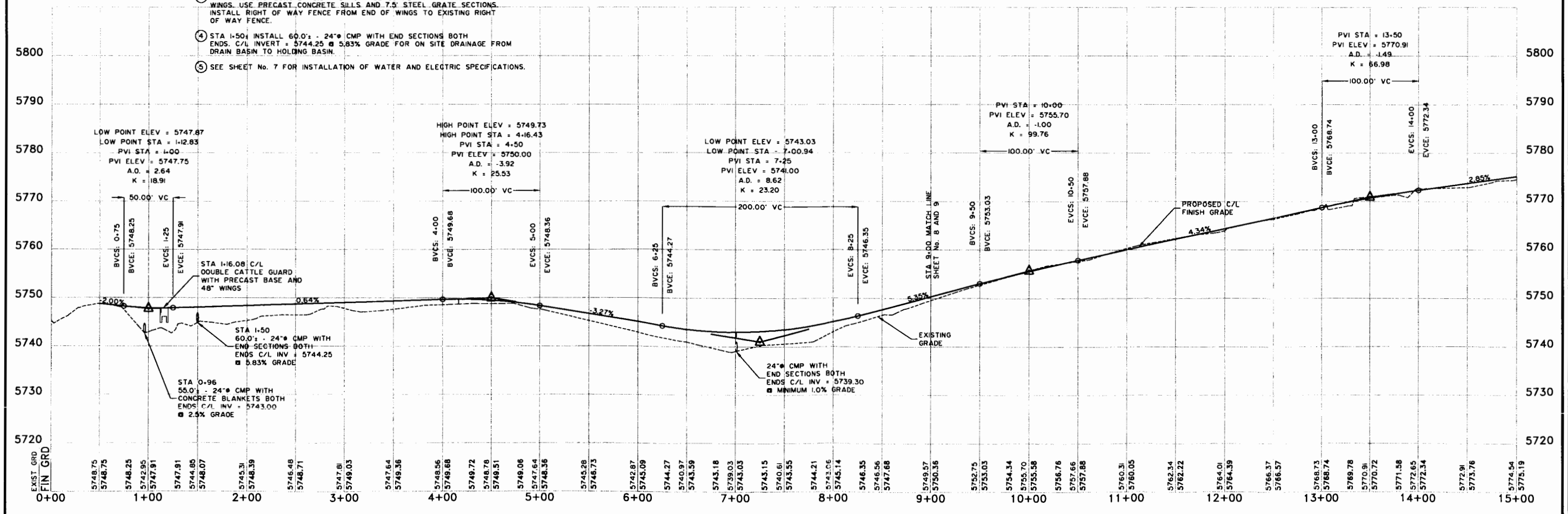
SHEET
7
OF
17



KEYED NOTES:

1. STA 0+96 INSTALL 60.0'± - 24"ø CMP WITH CONCRETE BLANKETS BOTH ENDS C/L INV = 5743.00 @ MINIMUM 3.33% GRADE TO CONTINUE DRAINAGE IN RIGHT OF WAY AS PER NMDOT STANDARD 511-22-1/2. & 511-22-2/2.
2. POURED IN PLACE CONCRETE PIPE CULVERT BLANKET AT MAXIMUM 8:1 SLOPE BOTH ENDS AS PER NMDOT STANDARD 511-22-1/2. & 511-22-2/2.
3. STA 1+16± 30.0' LONG BY 8.0' WIDE CATTLE GUARD WITH STEEL 4.0' WINGS. USE PRECAST CONCRETE SILLS AND 7.5' STEEL GRATE SECTIONS. INSTALL RIGHT OF WAY FENCE FROM END OF WINGS TO EXISTING RIGHT OF WAY FENCE.
4. STA 1+50± INSTALL 60.0'± - 24"ø CMP WITH END SECTIONS BOTH ENDS. C/L INVERT = 5744.25 @ 5.83% GRADE FOR ON SITE DRAINAGE FROM DRAIN BASIN TO HOLDING BASIN.
5. SEE SHEET No. 7 FOR INSTALLATION OF WATER AND ELECTRIC SPECIFICATIONS.



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NEW MEXICO PROFESSIONAL ENGINEER NO. 3634 RICHARD E. CHENEY 07/31/2013

PLAN AND PROFILE ENTRANCE ROAD
CROWE BLANCO PROPERTIES LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE: 03/21/2012
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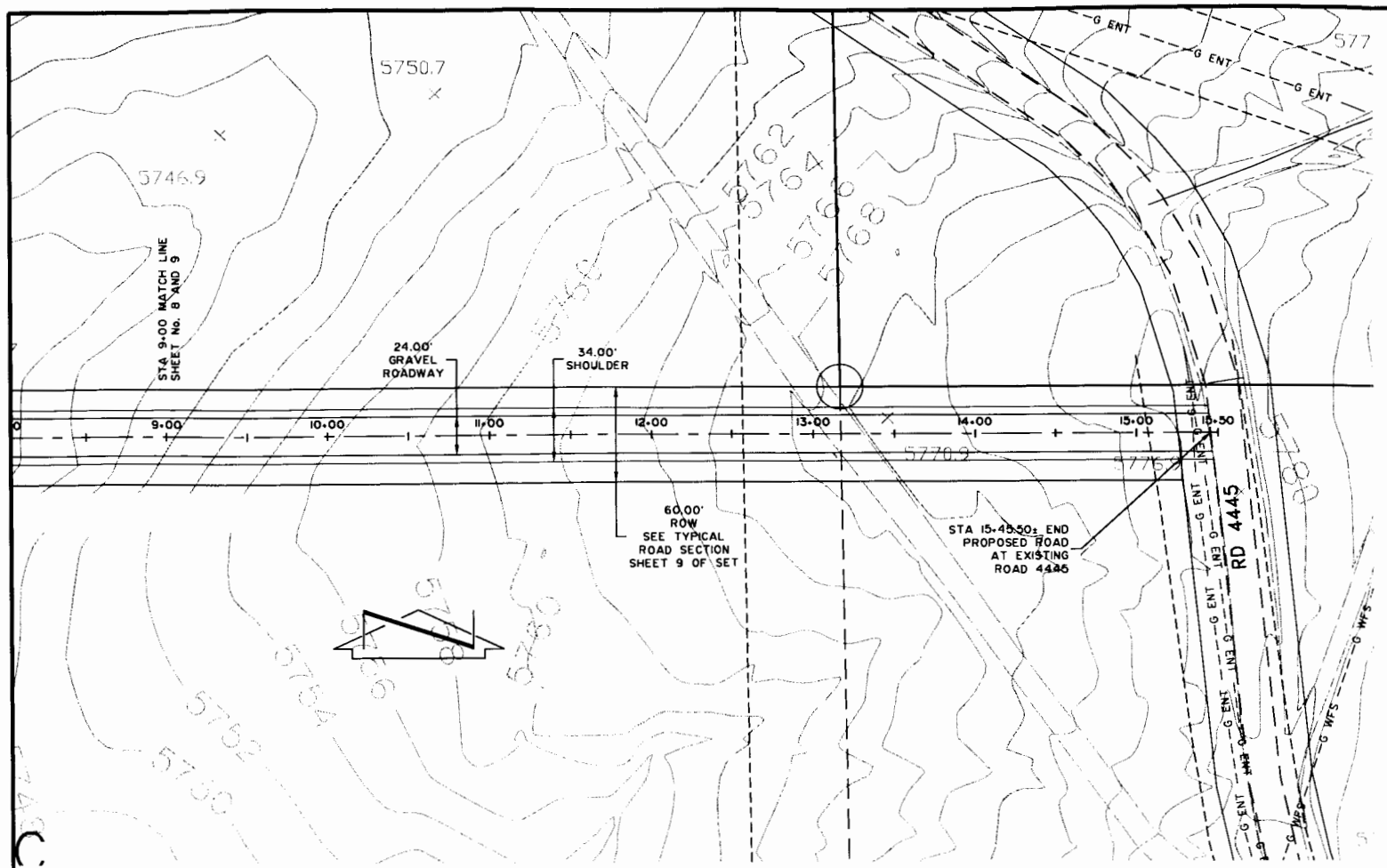
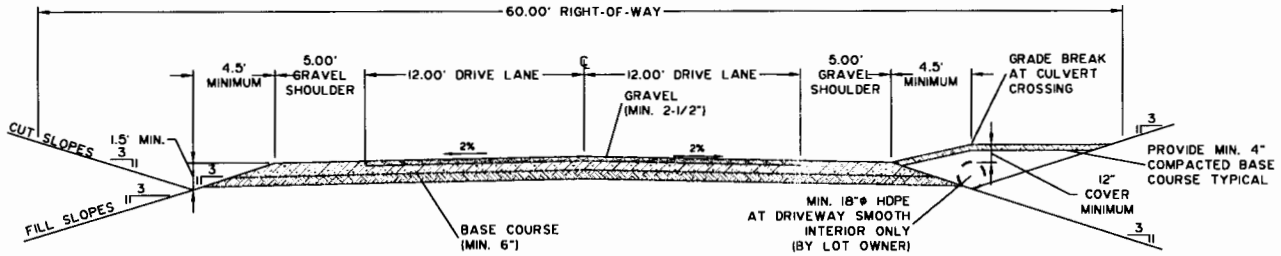
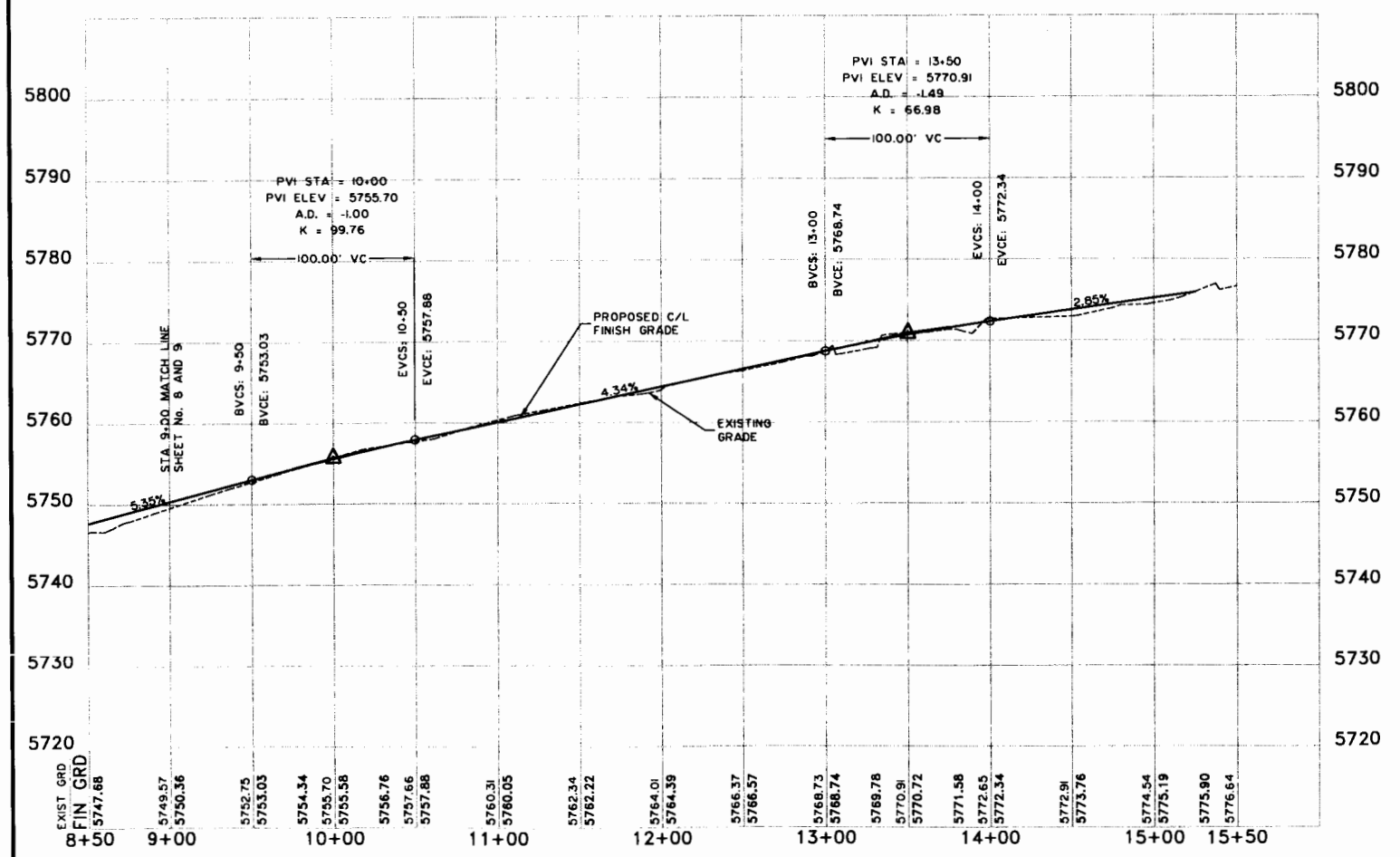
SCALE: 1" = 50'H
FILE: 09467SET
SHEET 8 OF 17





TYPICAL ENTRANCE ROAD SECTION 60' R/W
SCALE: 1" = 5'



CHENEY-WALTERS-ECHOLS
ENGINEERS • SURVEYORS
909 W. APACHE • FARMINGTON, NEW MEXICO 87401 • (505)327-3303

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NEW MEXICO PROFESSIONAL ENGINEER NO. 3634 RICHARD P. CHENEY

PLAN AND PROFILE ENTRANCE ROAD
CROWE BLANCO PROPERTIES LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

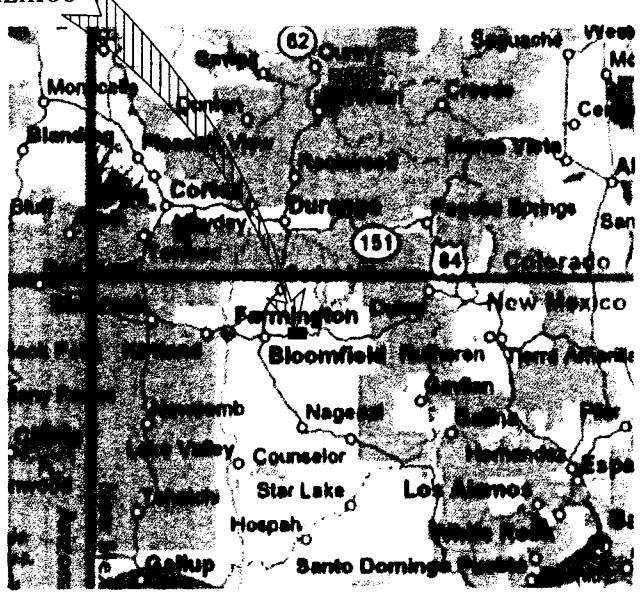
DATE: 03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE: 1" = 50'H
FILE: 09467SET
SHEET 9 OF 17

CROWE BLANCO PROPERTIES, LLC. OPERATED BY:
INDUSTRIAL ECOSYSTEMS, INC.
BLANCO FACILITY PROCESS AREA ENGINEERING DESIGN
BLANCO, SAN JUAN COUNTY, NEW MEXICO

AUGUST, 2011

REVISED APRIL, 2012

PROJECT SITE
BLANCO, NEW MEXICO

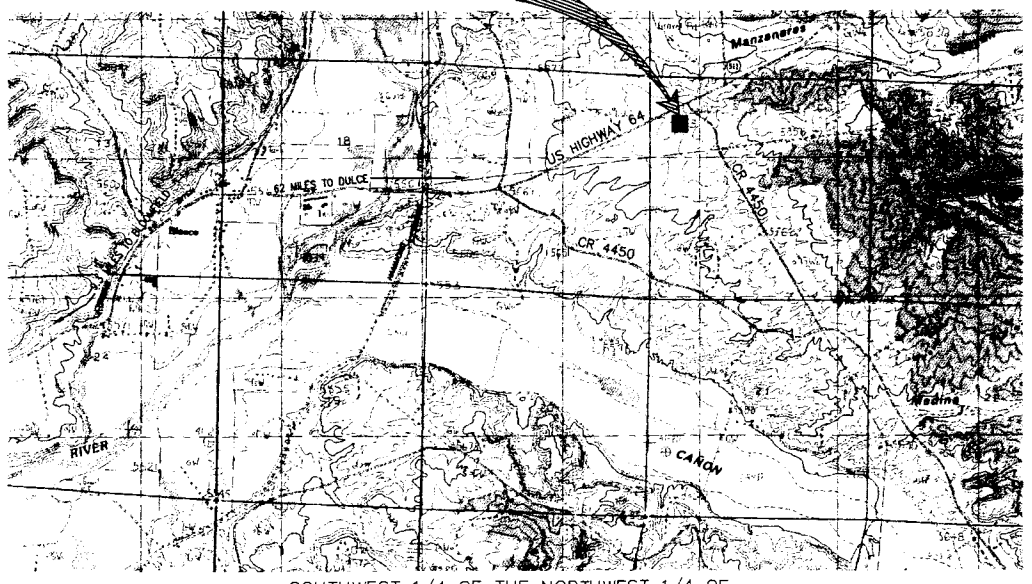


VICINITY MAP
NOT TO SCALE

SHEET INDEX

SHEET NO.	*DRAWING*
C101	*COVER SHEET*
C102	*GENERAL NOTES AND LEGEND*
C103	*EXISTING SITE PLAN*
C104	*PROPOSED SITE PLAN*
C105	*GRADING AND DRAINAGE PLAN*
C106	*HORIZONTAL CONTROL PLAN*
C107	*PIPING PLAN*
C108	*PROCESS PLAN AND ENGINEER DESIGN PLAN*
C109	*SEPTIC SYSTEM DESIGN*

PROJECT SITE



SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF
SECTION 16, TOWNSHIP 29 WEST, RANGE 9 WEST,
SAN JUAN COUNTY, NEW MEXICO

LOCATION MAP
NOT TO SCALE

PREPARED BY:

SOUDER, MILLER & ASSOCIATES
2101 SAN JUAN BLVD.
FARMINGTON, NM 87401
ATTN: DOUGLAS W. MIZE, PE
PHONE: 505-325-7535

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION ON BEHALF OF SOUDER, MILLER & ASSOCIATES.

DOUGLAS W. MIZE, PE 13678
SENIOR PROJECT ENGINEER

5.7.2012
DATE

DOUGLAS W. MIZE
NEW MEXICO
13678
5.7.2012
PROFESSIONAL ENGINEER

Revision	Date	Description	By	Chkd
1	4/2012	OCD REVIEW COMMENTS	DWM	

INDUSTRIAL ECOSYSTEMS INC. — SAN JUAN COUNTY, NM

CROWE BLANCO PROPERTIES, LLC. OPERATED BY:
INDUSTRIAL ECOSYSTEMS INC.
BLANCO FACILITY PROCESS ENGINEERING DESIGN
COVER SHEET

SOUDER, MILLER & ASSOCIATES
2101 SAN JUAN BLVD
FARMINGTON, NM 87401
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ASMA — Engineering / Environmental / Surveying

Designed	Drawn	Checked
DWM	GLP	DWM

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

Date: AUGUST, 2011
Scale: Horiz: NTS Vert: N/A
Project No: 5119829
Sheet: C101

GENERAL NOTES

1) THE SITE WORK SHALL BE IN ACCORDANCE WITH ALL SAN JUAN COUNTY, NEW MEXICO AND STATE OF NEW MEXICO CODES FOR CONSTRUCTION.

2) EXISTING UTILITIES ARE SHOWN BASED UPON INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS AND ELEVATIONS TO AVOID POTENTIAL CONFLICTS. ANY CONFLICTS SHALL BE DIRECTED TO THE UTILITY PROVIDER, THE OWNER AND THE ENGINEER.

3) THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH ALL UTILITY COMPANIES WITH REGARD TO RELOCATING, ADJUSTING, REPLACING, AND/OR REPAIRING UTILITIES DURING CONSTRUCTION.

4) THE CONTRACTOR SHALL NOTIFY LOCAL FIRE DEPARTMENT 24 HOURS BEFORE CONSTRUCTION ACTIVITIES BEGIN.

5) THE CONTRACTOR SHALL SLOPE ALL TRENCHES AND SLOPES AS REQUIRED TO COMPLY WITH STATE AND FEDERAL CODES TO PROTECT LIFE AND SAFETY OF WORKMEN DURING CONSTRUCTION.

6) THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION ACTIVITY SAFETY INCLUDING, BUT NOT LIMITED TO, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL AND SITE SECURITY.

7) THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE STREETS FREE AND CLEAR OF ANY DEBRIS THAT IS TRACKED FROM THE SITE.

8) THE CONTRACTOR SHALL KEEP, AND UPOATE, AN AS-BUILT SET OF DRAWINGS DURING THE CONSTRUCTION OF THE PROJECT. AS-BUILT DRAWINGS SHALL BE DELIVERED TO THE OWNER AFTER CONSTRUCTION.

9) PRIOR TO AND DURING CONSTRUCTION, ALL ACCESS ROADS SHALL BE SERVICEABLE AND MAINTAINED FOR FIRE PROTECTION AND EMERGENCY VEHICLE ACCESS.

10) ITEMS DESIGNATED FOR REMOVAL WITHOUT SALVAGE SHALL BE PLACED IN AN ENVIRONMENTALLY SUITABLE DISPOSAL SITE.

11) THE CONTRACTOR SHALL BE RESTRICTED TO A 35 TON (MAXIMUM) NON-VIBRATORY ROLLER FOR COMPACTION IN AREAS WHERE THE USE OF HEAVIER EQUIPMENT COULD DAMAGE UNDERGROUND UTILITIES OR PERMANENTLY DAMAGE ADJACENT STRUCTURES.

12) THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING AND CLEAN-UP OF SPILLS ASSOCIATED WITH THE CONSTRUCTION OF THE PROJECT AND SHALL RESPOND TO SPILLS OF HAZARDOUS MATERIALS (SUCH AS GASOLINE, DIESEL, MOTOR OILS, SOLVENTS, CHEMICALS, TOXIC AND CORROSIVE SUBSTANCES, AND OTHER MATERIALS THAT MAY THREATEN THE PUBLIC OR THE ENVIRONMENT, TO THE PROJECT MANAGER. ANY SPILLS ASSOCIATED WITH THE PROJECT SHALL BE CLEANED-UP BY THE CONTRACTOR. THE CONTRACTOR SHALL BEAR ALL EXPENSES OF THE COST OF CLEAN UP OF SUCH SPILLS.

13) THE CONTRACTOR SHALL REPLACE ALL DESTROYED OR DAMAGED SURFACE IMPROVEMENTS WITH IMPROVEMENTS EQUAL TO THOSE REMOVED OR DAMAGED.

14) TOPOGRAPHY INFORMATION, INCLUDING HORIZONTAL AND VERTICAL OATA, SHOWN ON THESE PLANS IS SHOWN ACCORDING TO INFORMATION PROVIDED BY OWNER. SOUDER, MILLER & ASSOCIATES HAS RELIED ON THIS DATA TO BE ACCURATE FOR THIS DESIGN.

15) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND APPURTENANCES NECESSARY TO COMPLETE THE WORK INTENDED AND SHOWN ON THE DRAWINGS.

16) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS ASSOCIATED WITH THE PROJECT.

17) ALL WORK IN THE VICINITY OF LIVE STREAMS, WATER IMPROVEMENTS, WETLANDS, OR IRRIGATION SUPPLIES SHALL BE COMPLETED IN SUCH A MANNER AS TO MINIMIZE VEGETATION REMOVAL, SOIL DISTURBANCE AND EROSION.

18) ALL DESIGN SLOPES ON THE SITE ARE SHOWN AS 3:1 (H:V) UNLESS OTHERWISE SPECIFIED.

19) THE CONTRACTOR SHALL REQUEST A LINE SPOT, CALL 811, BEFORE DIGGING.

20) SITE COMPACTION WORK SHALL BE COMPLETED AND IN ACCORDING TO GEOTECHNICAL REPORT PREPARED BY GEOMAT, INC. (PROJECT No. 102-1039)

21) ALL ELECTRICAL DRAWINGS ANO ASSOCIATED SPECIFICATIONS ARE TO BE PROVIDED BY OWNER.

PIPING NOTES:

1) ALL PIPING SHALL BE PLACED 3' BELOW FINISH GRADE.
2) ALL PIPING SHALL BE 4" HDPE DR17 EXCEPT WHERE STEEL PIPING IS USEO TO TIE INTO TANKS AND AT PENETRATIONS.
3) BOND BREAKER SHALL BE USED ON ALL PENETRATIONS THROUGH CONCRETE FLOORS AND WALLS.
4) ISOLATION VALVES SHOWN, SHALL CONSIST OF THE ISOLATION VALVE AND VALVE BOX COVERS.
5) CONTRACTOR SHALL INSTALL 4"X3" REDUCER @ T3 PUMPS.
6) ALL PUMPS HALL BE MOUNTED ON A CONCRETE PAD PER MANUFACTURERS RECOMMENDATIONS
7) ALL PUMP SHALL BE COVERED WITH AN INSULATION BOX TO PROTECT PUMP AND PIPING FROM FREEZING. ALL PIPING SHALL BE CONTAINED WITHIN BOX ENCLOSURE @ THE POINT IT IS BURIED 3' BELOW GRADE.

LEGEND

— — —	SWALE
6995	EXISTING MAJOR CONTOUR
6994	EXISTING MINOR CONTOUR
6995	FINISH MAJOR CONTOURS
6994	FINISH MINOR CONTOURS
	PROPERTY LINE
x 6999.00 FG	FINISH GRADE ELEVATION
→	SLOPE
x	CHAINLINK FENCE
⟹	DIRECTION OF FLOW
	4"ø HDPE PIPING OR STEEL & DIRECTION OF FLOW

ABBREVIATIONS

FG	FINISH GRADE
INV	INVERT
TOE	TOE OF POND
TOP	TOP OF POND/LINER
FL	FLOWLINE
ME	MATCH EXISTING

EARTHWORK VOLUMES

CUT -4622.57 CY

FILL -8792.26 CY

EARTHWORK VOLUMES BASED UPON A ZERO SHRINK/SWELL FACTOR. CONTRACTOR TO BASE BID UPON CONTRACTOR'S TAKE OFF.

EMERGENCY CONTACT NUMBERS

FIRE AND POLICE EMERGENCIES	911
TERRY LATTIN, INDUSTRIAL ECOSYSTEMS, INC., MANAGER	505-632-1782

ENGINEER

DOUGLAS W. MIZE, P.E.
SOUDER, MILLER & ASSOCIATES
2101 SAN JUAN BOULEVARD
FARMINGTON, NEW MEXICO
(505) 325-7535

OPERATOR

TERRY LATTIN, MANAGER
INDUSTRIAL ECOSYSTEMS, INC.,
505-632-1782
49 CR 3150
Aztec, NM 87410

OWNER

CROWE BLANCO PROPERTY LLC.

PROJECT INTENT

THE INTENT OF THESE DRAWINGS ARE TO PROVIDE A DESIGN FOR THE PROCESS ENGINEERING AND GRADING AND DRAINAGE CONSTRUCTION PLAN SET THAT REPRESENTS THE CONSTRUCTION AROUND THE PROCESS PLAN.

DOUGLAS W. MIZE NEW MEXICO 13678 PROFESSIONAL ENGINEER 5.7.2012

No.	Revision	Date	Description	By	Chkd
1		4/2012	OCD REVIEW COMMENTS	DWM	

INDUSTRIAL ECOSYSTEMS INC. — SAN JUAN COUNTY, NM

CROWE BLANCO PROPERTIES, LLC. OPERATED BY:
INDUSTRIAL ECOSYSTEMS INC.

BLANCO FACILITY PROCESS ENGINEERING DESIGN

GENERAL NOTES AND LEGEND

SOUDER, MILLER & ASSOCIATES
2101 SAN JUAN BLVD
FARMINGTON, NM 87401
Phone:(505) 325-7535 Toll Free:(800) 519-0004 Fax:(505) 326-6045
www.soudermiller.com
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ASMA Engineering Environmental Surveying

Designed	Drawn	Checked
DWM	GLP	DWM

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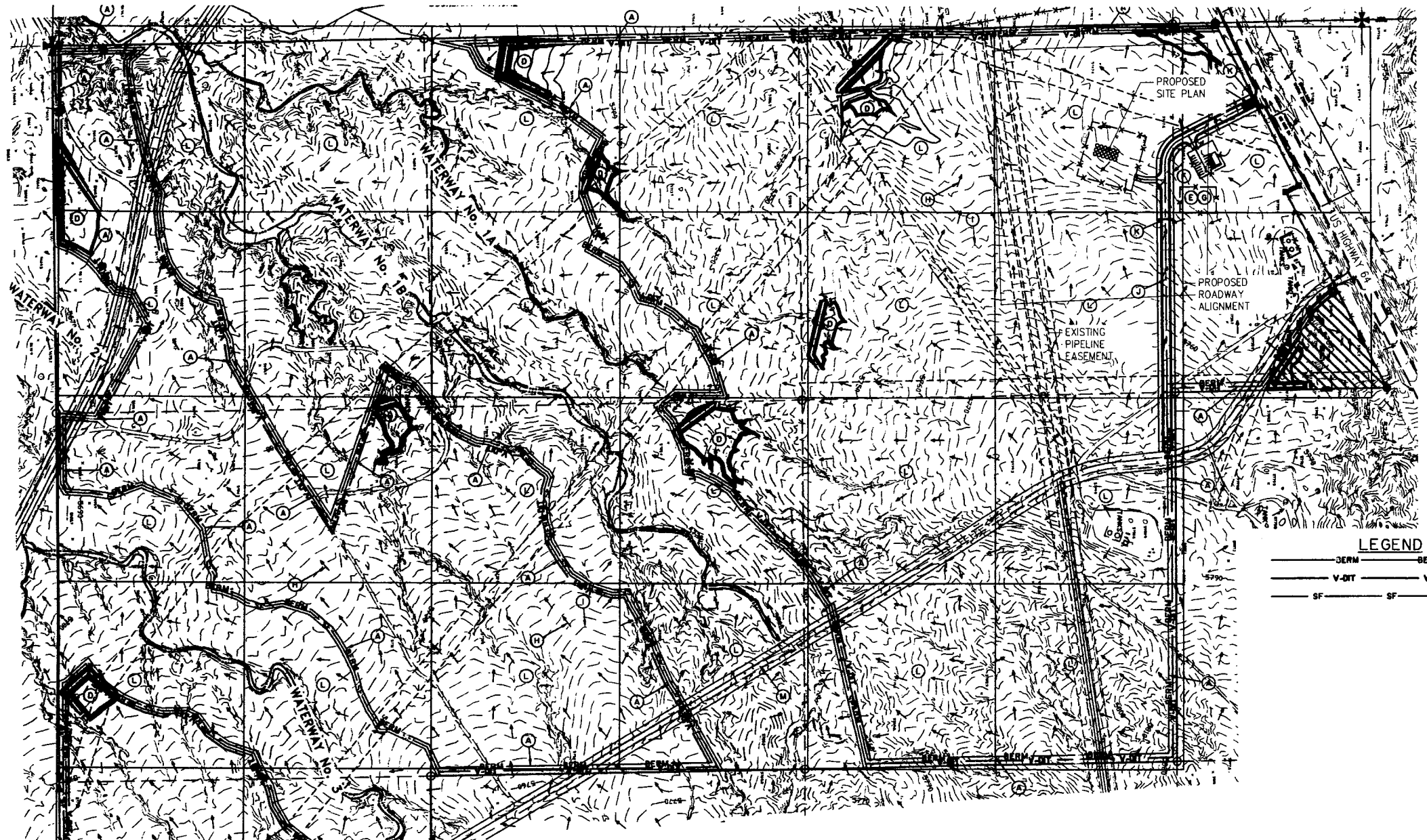
Date: AUGUST, 2011

Scale: Horiz: N/A Vert: N/A

Project No. 5119829

Sheet: C102



LEGEND

- BERM — BERM — EARTH BERM PLACEMENT
- V-DIT — V-DIT — V-DITCH AS NEEDED
- SF — SF — SF — SILT FENCE PLACEMENT
- EXISTING DRAINAGE FLOW DIRECTION

KEYED NOTES:

(A) TEMPORARY MEASURES - PROTECT RECEIVING WATERS FROM SILT RUNOFF WITH THE CONSTRUCTION OF AN EARTH BERM AND WINROW DITCH AS NEEDED TO INTERCEPT AND DIRECT STORMWATER RUNOFF TO SETTLING AREAS. SEE DETAIL 1/11 FOR BERM CONSTRUCTION. INSTALL SILT FENCE AS SHOWN. SEE DETAIL 2/11.

(B) PROVIDE A 30' WIDE BY 50' IN LENGTH AREA AS A STABILIZED AREA. THIS AREA SHALL BE EXCAVATED TO 6" BELOW FINISH GRADE OF PROPOSED NEW ROAD, COVERED WITH A GEOGRID FABRIC BY MIRAFI INC. NUMBER NSI40 OR EQUAL. 2" AND 3" STONE SHALL BE PLACED ON TOP OF FABRIC TO STABILIZE ACCESS POINT. CONTRACTOR MAY DOCUMENT AND USE ALTERNATIVE FORM OF STABILIZATION.

(C) CONSTRUCT A DEPRESSED AREA OF 6" IN DEPTH APPROXIMATELY 10' IN RADIUS OR A 10' BY 10' SQUARE. LINE DEPRESSION WITH A HEAVY PLASTIC SHEET TO CONTAIN WASTE CONCRETE WASH OUT FROM TRUCKS. REMOVE AS NEEDED TO ENSURE CONTAINMENT OF WASTE FROM COMING INTO CONTACT WITH EXISTING GROUNDS.

(D) CONSTRUCT RETENTION DIKES TO BE USED AS A SETTLING POND FOR SEDIMENT AND TO RECEIVE THE STORMWATER RUNOFF FROM THIS PROJECT. ALL RETENTION DIKES SHALL BE STORMWATER MONITORING POINT. NO CONTAMINATED RUNOFF SHALL LEAVE PROPERTY

(E) FENCE ENCLOSED MATERIAL YARD AND PORTABLE RESTROOM AND TRASH RECEPTICAL LOCATIONS. (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION)

(F) WASTE CONSTRUCTION AREA (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION).

(G) SPILL PREVENTION KIT (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION).

(H) ARROWS INDICATE DIRECTION OF HISTORICAL DRAINAGE FLOW. SEE LEGEND TYPICAL

(I) TOPOGRAPHIC CONTOUR LINES INDICATE SLOPE OF EXISTING GROUND.

(J) PROPOSED GRAVEL ROADWAY.

(K) PROPOSED 24"ø CMP CULVERT.

(L) TYPICAL 10 ACRE LAND CELL.

(M) EXISTING ROAD TO BE USED FOR ACCESS ACROSS THE PROTECTED WATERWAYS.

SCALE: N.T.S.

NOTE:
THIS BASE DRAWING WAS PROVIDED BY INDUSTRIAL ECOSYSTEMS INC. AS PART OF WORK COMPLETED FOR THEIR PERMIT PLAN SET. SMA MAKES NO REPRESENTATION TO ITS ACCURACY, DESIGN OR ASSUMPTIONS. THIS SHEET IS FOR GENERAL REFERENCE ONLY.

DOUGLAS W. MIZE
NEW MEXICO
13678
5.7.20
PROFESSIONAL ENGINEER

Revision	Date	Description	By	Chk'd
1	4/2012	OCD REVIEW COMMENTS	DWM	

INDUSTRIAL ECOSYSTEMS INC. — SAN JUAN COUNTY, NM

CROWE BLANCO PROPERTIES, LLC. OPERATED BY:
INDUSTRIAL ECOSYSTEMS INC.
BLANCO FACILITY PROCESS ENGINEERING DESIGN
EXISTING SITE PLAN

SOUDER, MILLER & ASSOCIATES
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FARMINGTON, NM 87401
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SMA — Engineering, Environmental, Surveying

Designed	Drawn	Checked
DWM	GLP	DWM

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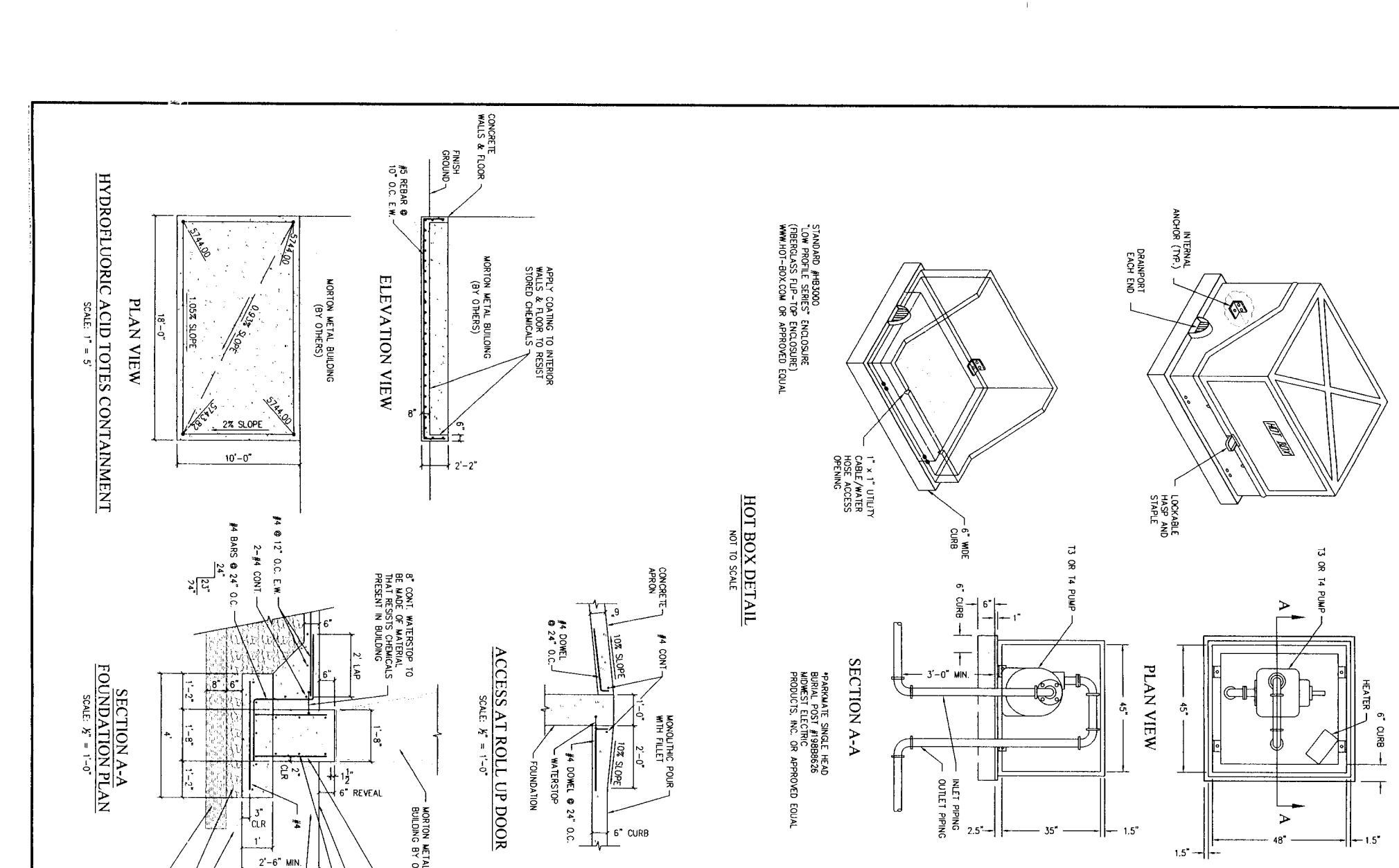
Date: AUGUST, 2011

Scale: Horiz. NTS
Vert. N/A

Project No. 5119829

Sheet: C103



Designed DHR	SOUDER, MILLER & ASSOCIATES 2101 SAN JUAN BLVD FARMINGTON, NM 87401 Phone (505) 325-7535 Toll-free (800) 519-0098 Fax (505) 326-0045 www.soudermiller.com Serving the Southwest & Rocky Mountains Albuquerque, Farmington, Las Cruces, Roswell, Santa Fe, NM - El Paso, TX Cortez, Grand Junction, Montrose, CO - Safford, AZ - Monticello, UT	INDUSTRIAL ECOSYSTEMS INC.	SAN JUAN COUNTY, NM	Revision	Date	Description	By / Chk'd
Drawn GLP		CROWE BLANCO PROPERTIES, LLC. OPERATED BY: INDUSTRIAL ECOSYSTEMS INC. BLANCO FACILITY PROCESS ENGINEERING DESIGN PROPOSED SITE PLAN		1	4/2012	OCD REVIEW COMMENTS	DWM
Checked DWM							

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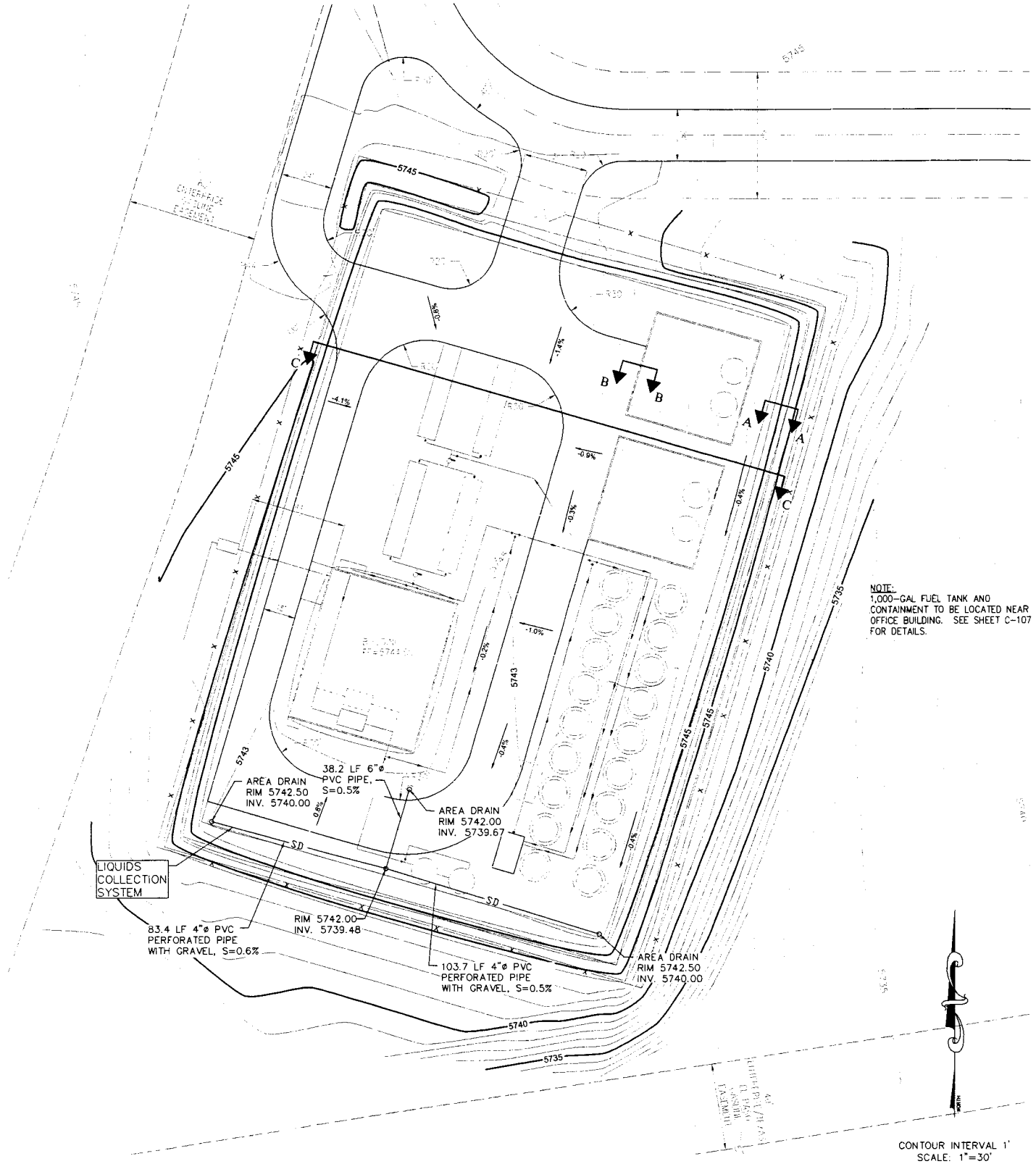
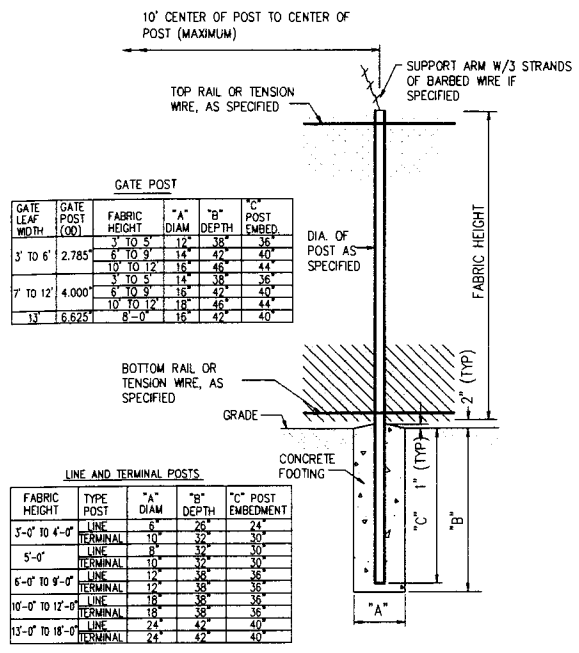
Date: AUGUST, 2011
Scale: Horiz 1" = 30' Vert N/A
Project No: 5119829
Sheet: C104



NOTE:
1,000-GAL FUEL TANK AND CONTAINMENT TO BE LOCATED NEAR OFFICE BUILDING. SEE SHEET C-107 FOR DETAILS.

GRADING PLAN AND DRAINAGE PLAN
SCALE: 1" = 30'



GATE POST

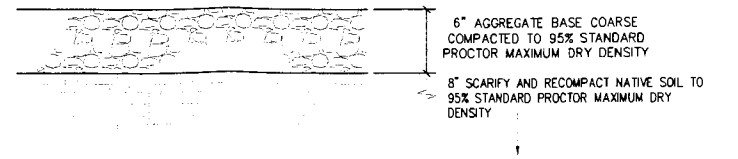
GATE LEAF WIDTH	GATE POST (OD)	FABRIC HEIGHT	"A" DIAM	"B" DEPTH	"C" POST EMBED.
3' TO 6'	2.785"	3' TO 5'	12"	38"	36"
		6' TO 9'	14"	42"	40"
		10' TO 12'	16"	46"	44"
7' TO 12'	4.000"	3' TO 5'	14"	38"	36"
		6' TO 9'	16"	42"	40"
		10' TO 12'	18"	46"	44"
13'	6.625"	8'-0"	16"	42"	40"

LINE AND TERMINAL POSTS

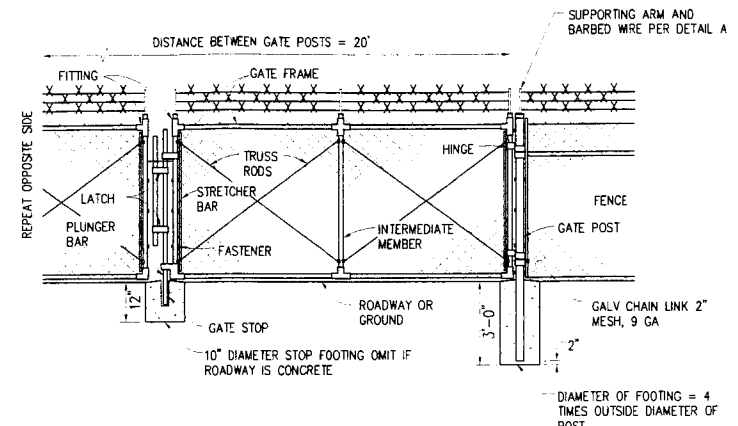
FABRIC HEIGHT	TYPE POST	"A" DIAM	"B" DEPTH	"C" POST EMBEDMENT
3'-0" TO 4'-0"	LINE	8"	26"	24"
	TERMINAL	10"	32"	30"
5'-0"	LINE	8"	32"	30"
	TERMINAL	10"	32"	30"
6'-0" TO 9'-0"	LINE	12"	38"	36"
	TERMINAL	12"	38"	36"
10'-0" TO 12'-0"	LINE	18"	38"	36"
	TERMINAL	18"	38"	36"
13'-0" TO 18'-0"	LINE	24"	42"	40"
	TERMINAL	24"	42"	40"

NOTE: TERMINAL POSTS INCLUDE END, CORNER, AND PULL POSTS

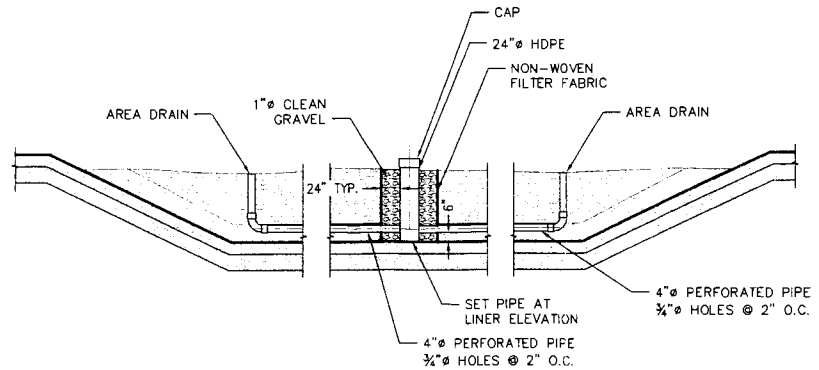
6' HIGH CHAIN LINK FENCE FOUNDATION
NOT TO SCALE



INTERIOR ACCESS ROAD AND FACILITY DRIVEWAY SECTION
NOT TO SCALE



6' HIGH CHAIN LINK GATE
NOT TO SCALE



LIQUIDS COLLECTION SYSTEM
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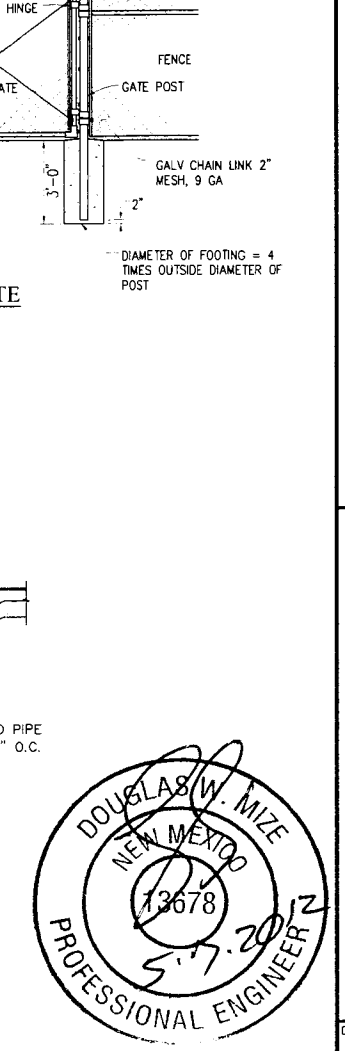
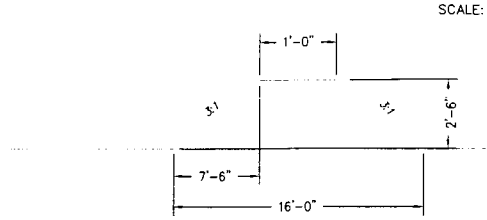
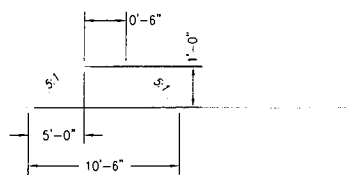
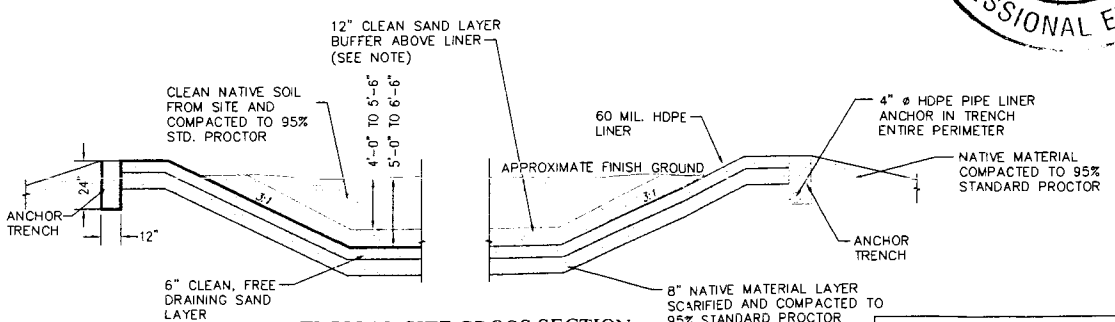




PROCESS BOUNDARY BERM SECTION A-A
NOT TO SCALE



TYPICAL PROCESS INTERIOR BERM SECTION B-B
NOT TO SCALE



NOTE: THE 12" SAND LAYER IS LOCATED TO WARN CONTRACTORS AND THE OPERATOR THAT WHEN DIGGING, THEY ARE CLOSE TO THE HDPE LINER. ALL PERSONNEL SHOULD BE NOTIFIED OF THIS PARAMETER.

TYPICAL SITE CROSS SECTION SECTION C-C
NOT TO SCALE

Revision	Date	Description	By	Chkd
1	4/2012	OCD REVIEW COMMENTS	DWM	

INDUSTRIAL ECOSYSTEMS INC.

CROWE BLANCO PROPERTIES, LLC. OPERATED BY:
INDUSTRIAL ECOSYSTEMS INC.

BLANCO FACILITY PROCESS ENGINEERING DESIGN
GRADING AND DRAINAGE PLAN

SAN JUAN COUNTY, NM

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ASMA Engineering Environmental Surveying

Designed	Drawn	Checked
DHR	GLP	DWM

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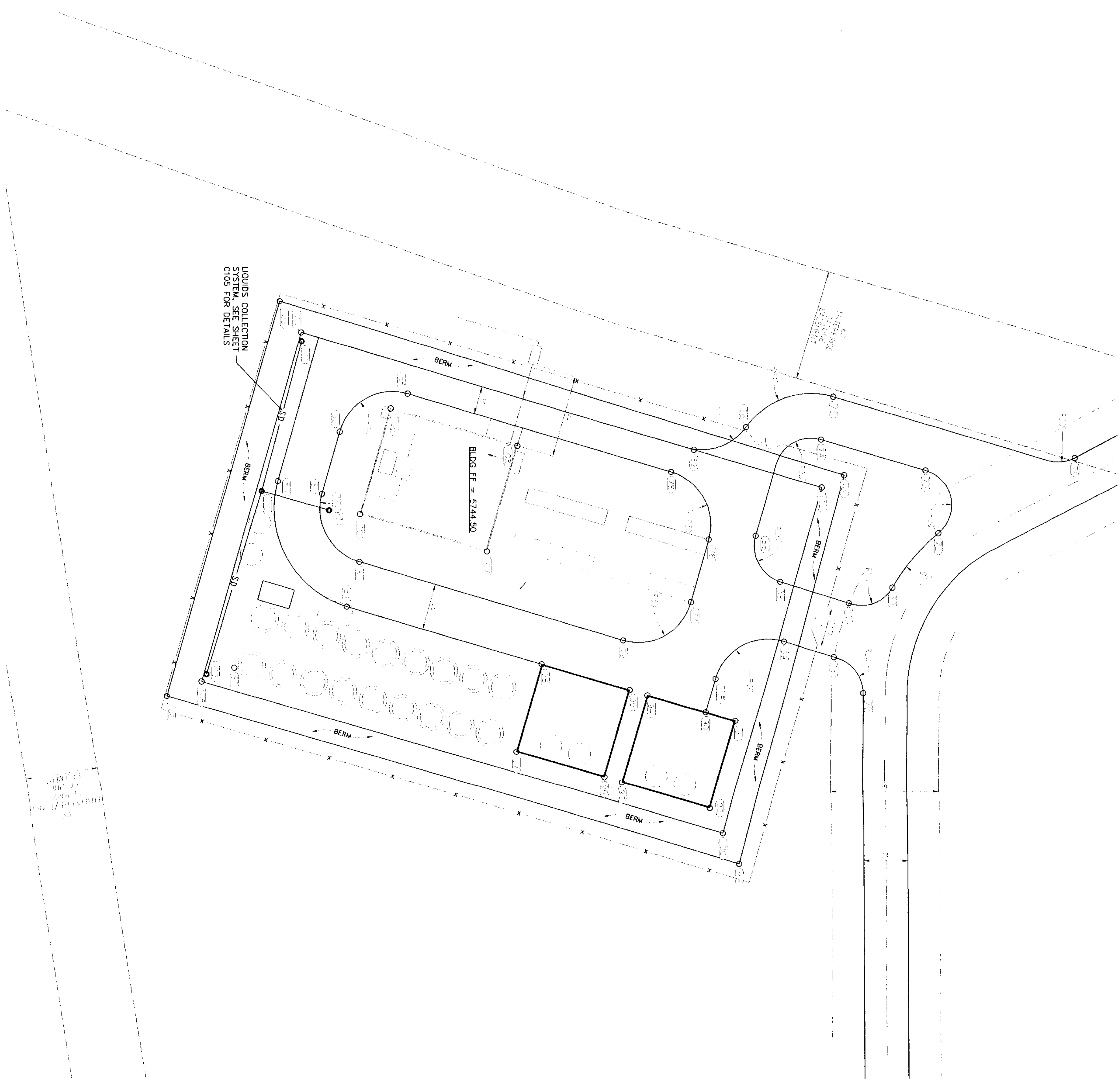
Date: AUGUST, 2011

Scale: Horiz: AS SHOWN Vert: N/A

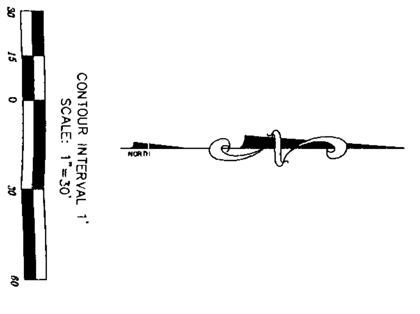
Project No: 5119829

Sheet: C105



HORIZONTAL CONTROL PLAN

SCALE: 1" = 30'



CONTOUR INTERVAL 1'
SCALE: 1"=30'

Point Table

Point #	Northing	Easting	Elevation	Description
15	85183.83	236324.00	5746.50	FG
16	85175.36	236352.78	5746.25	FG
38	85146.37	236312.46	5743.76	FG
39	85148.21	236344.42	5745.02	FG
69	85207.87	236315.56	5747.50	EDGE OF ROAD
70	85191.25	236372.43	5746.74	EDGE OF ROAD
71	85306.05	236244.94	5748.00	EDGE OF ROAD
72	85233.12	236286.36	5747.76	EDGE OF RAOD
73	85226.01	236251.72	5747.65	FG
74	85169.26	236235.14	5747.00	FG
75	85175.99	236212.11	5747.00	FG
76	85107.47	236289.76	5743.52	FG
77	85097.65	236323.38	5743.44	FG
78	85087.10	236252.55	5743.44	FG
79	85060.44	236343.76	5743.28	FG
80	84916.76	236301.78	5742.76	FG
81	84896.38	236264.58	5742.60	FG
82	84906.22	236230.89	5742.86	FG
83	84872.38	236257.56	5742.70	FG
84	84909.75	236325.78	5743.00	FG
85	84943.44	236210.51	5743.00	FG
86	85133.06	236287.74	5743.76	FG
87	84848.11	236358.66	5742.58	FG
88	85128.16	236228.33	5746.00	FG
89	85099.54	236240.56	5744.00	FG
90	85105.26	236382.90	5743.69	FG
91	85121.45	236387.64	5743.88	FG
92	85107.40	236435.62	5743.93	FG
93	85059.42	236421.58	5743.67	FG
94	85073.46	236373.59	5743.58	FG
95	85063.89	236370.69	5743.55	FG
96	85049.85	236418.67	5743.62	FG
97	85001.86	236404.63	5743.31	FG
98	85015.90	236356.64	5743.38	FG
99	85123.22	236465.26	5744.00	FG
100	85114.39	236449.13	5744.00	FG
101	85181.85	236254.23	5745.00	FG
102	85169.44	236261.02	5744.00	FG
103	84873.66	236160.91	5744.00	FG
104	84885.38	236177.91	5744.00	FG
105	84830.33	236366.00	5744.00	FG
106	84811.30	236373.97	5744.00	FG
107	84986.35	236296.12	5744.00	BLDG
108	85003.20	236238.54	5744.00	BLDG
109	84934.10	236218.32	5744.00	BLDG
110	84917.25	236275.90	5744.00	BLDG
111	84885.54	236182.62	5742.50	STORM DRAIN
112	84863.55	236263.03	5742.00	STORM DRAIN
113	84833.01	236362.09	5742.50	STORM DRAIN
114	84900.26	236273.74	5742.00	STORM DRAIN
115	85110.58	236364.68	5743.76	FG

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13678
PROFESSIONAL ENGINEER
5.17.2012

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Sheet: C106

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DHR	GLP	DWM

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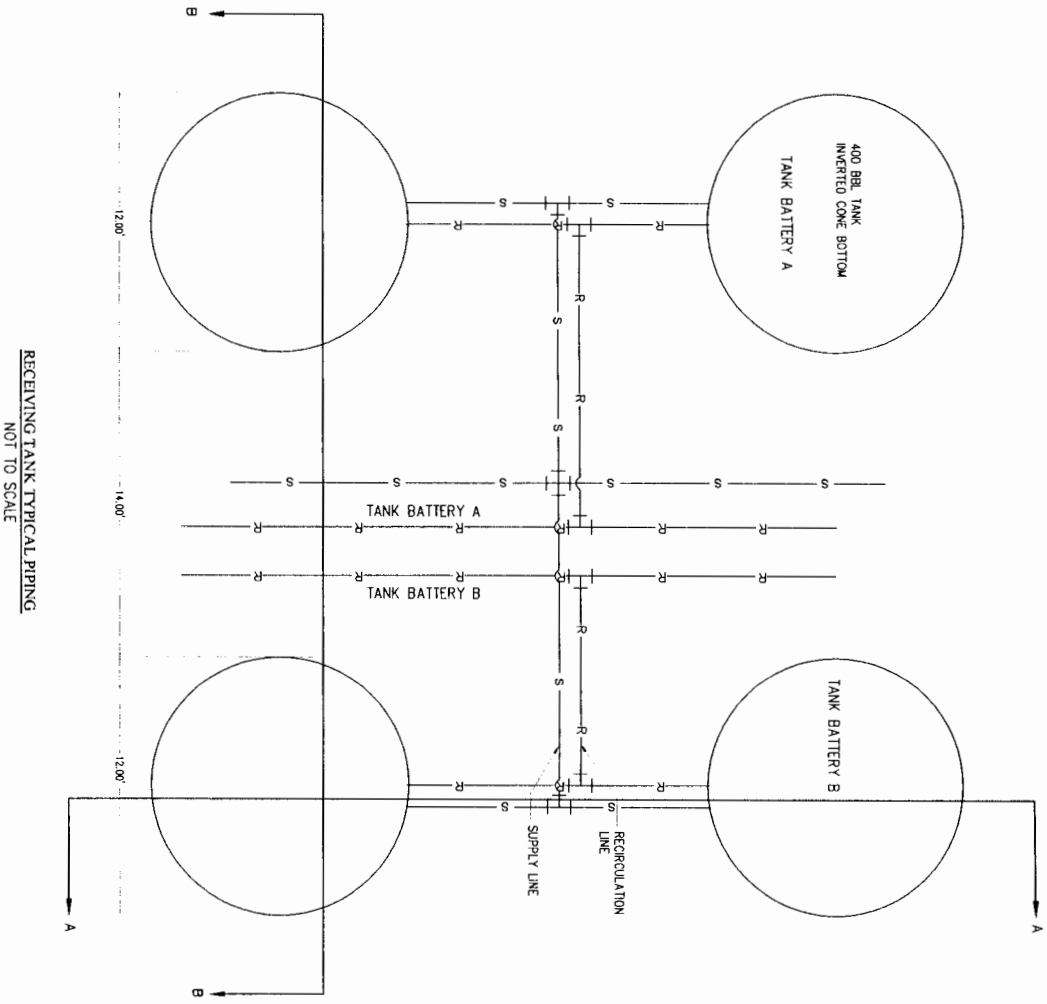
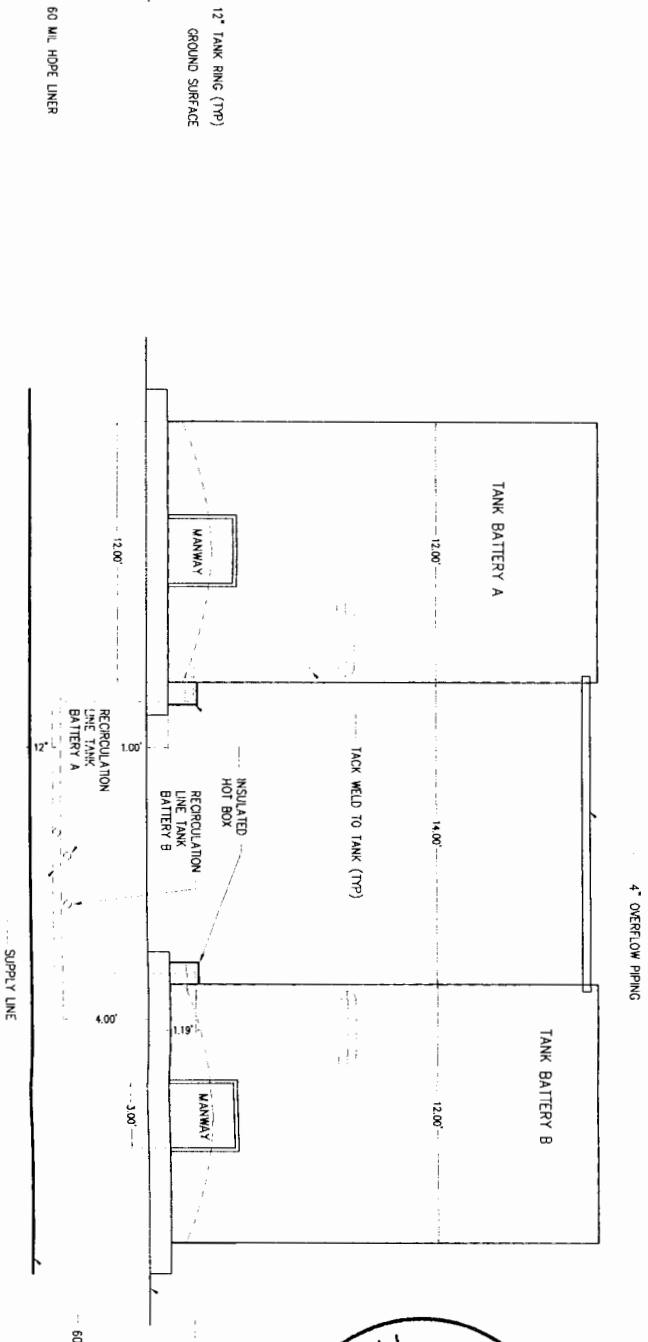
INDUSTRIAL ECOSYSTEMS INC.
BLANCO FACILITY PROCESS ENGINEERING DESIGN
HORIZONTAL CONTROL PLAN

Revision	Date	Description	By	Chk'd
1	4/2012	OCD REVIEW COMMENTS	DWM	



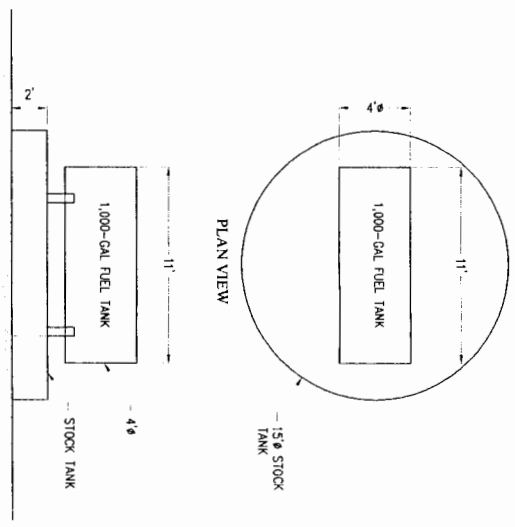
RECEIVING TANK TYPICAL PIPING
NOT TO SCALE



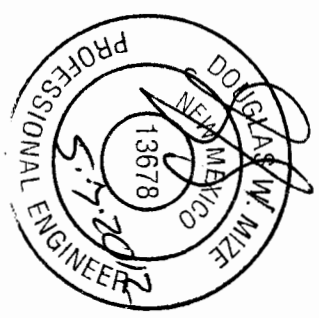
ELEVATION SECTION A-A
NOT TO SCALE

NOTE: SEE SECTION C-C, SHEET C105 FOR TYPICAL SITE CROSS-SECTION

ELEVATION SECTION B-B
NOT TO SCALE



FUELING TANK & CONTAINMENT
NOT TO SCALE



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PIPING PLAN

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INDUSTRIAL ECOSYSTEMS INC. — SAN JUAN COUNTY, NM

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Date AUGUST, 2011
Scale Horiz AS SHOWN Vert NA
Project No 519829
Sheet C108

SCALE: 1"=30'

DOUGLAS W. MIZE
NEW MEXICO
13678
PROFESSIONAL ENGINEER
5.7.2012

EQUIPMENT SPECIFICATIONS.

MOBILE SHAKER TANK – SHAKER TANK SHALL BE 45' IN LENGTH, 8'-6" WIDE X 10' HIGH, 14" FLOOR (V-BOTTOM), 1/4" STEEL WALLS, ONE MAN-WAY ON LOWER REAR SIDE WALL, LADDER AND PLATFORM ON FRONT OF TANK. TWO (2) CHOTRONIC 4'X8' SHALE SHAKERS MOUNTED ON TOP. (60 MESH SCREENS). EXPANDED METAL. CUT TO FIT. TO PROHIBIT MULCH FROM ENTERING THE UNIT.

MOBILE SLURRY HOLDING TANK – SLURRY HOLDING TANK SHALL BE 45' IN LENGTH, 8'-6" WIDE X 10' HIGH, 1/4" FLOOR (V-BOTTOM), 1/4" CORRUGATED WALLS, ONE MAN-WAY ON LOWER REAR SIDE WALL, LADDER AND PLATFORM ON FRONT OF TANK. GORMAN RUPP 6" PUMP FOR TRANSFERRING SLURRY TO CENTRIFUGE OR STORAGE TANKS. SHAKER UNIT SHALL HAVE THE TOP COVERED WITH EXPANDED METAL. CUT TO FIT" TO PROHIBIT MULCH FROM ENTERING THE UNIT.

CENTRIFUGE – THE CENTRIFUGE SHALL BE HUTCHINSON-HAYES MODEL 1448 14" DIAMETER, 48" LENGTH NORMAL CENTRIFUGAL FORCE 2118 G's AT 3250 RPM, MAXIMUM 3180 G's AT 4000 RPM. THE BASIC PURPOSE OF CENTRIFUGE IS TO SEPARATE THE LIQUID AND SOLIDS FROM THE FEED SLURRY IE: DRILL MUD, DRILL CUTTINGS, AND TANK BOTTOMS. A STAINLESS STEEL SCREW CONVEYOR (FACED WITH HARD TILES) GATHERS AND CONVEYS THESE SOLIDS TO A CENTRAL DISCHARGE AREA. THE CONVEYOR IS DRIVEN AT A SLIGHTLY SLOWER RPM THRU A PLANETARY GEAR REDUCER. THE LIQUIDS MIGRATE TO THE FRONT END OF THE MACHINE AND ARE DISPELLED THRU FOUR (4) ADJUSTABLE PLATE DAM OPENINGS, TO A CENTRAL DISCHARGE AREA THEN PUMPED TO A LIQUID STORAGE TANK TO BE DISPOSED OF.

STORAGE TANKS – STORAGE TANKS SHALL BE STANDARD, 400 BARREL OIL FIELD TANKS (12' DIAMETER X 20' TALL).

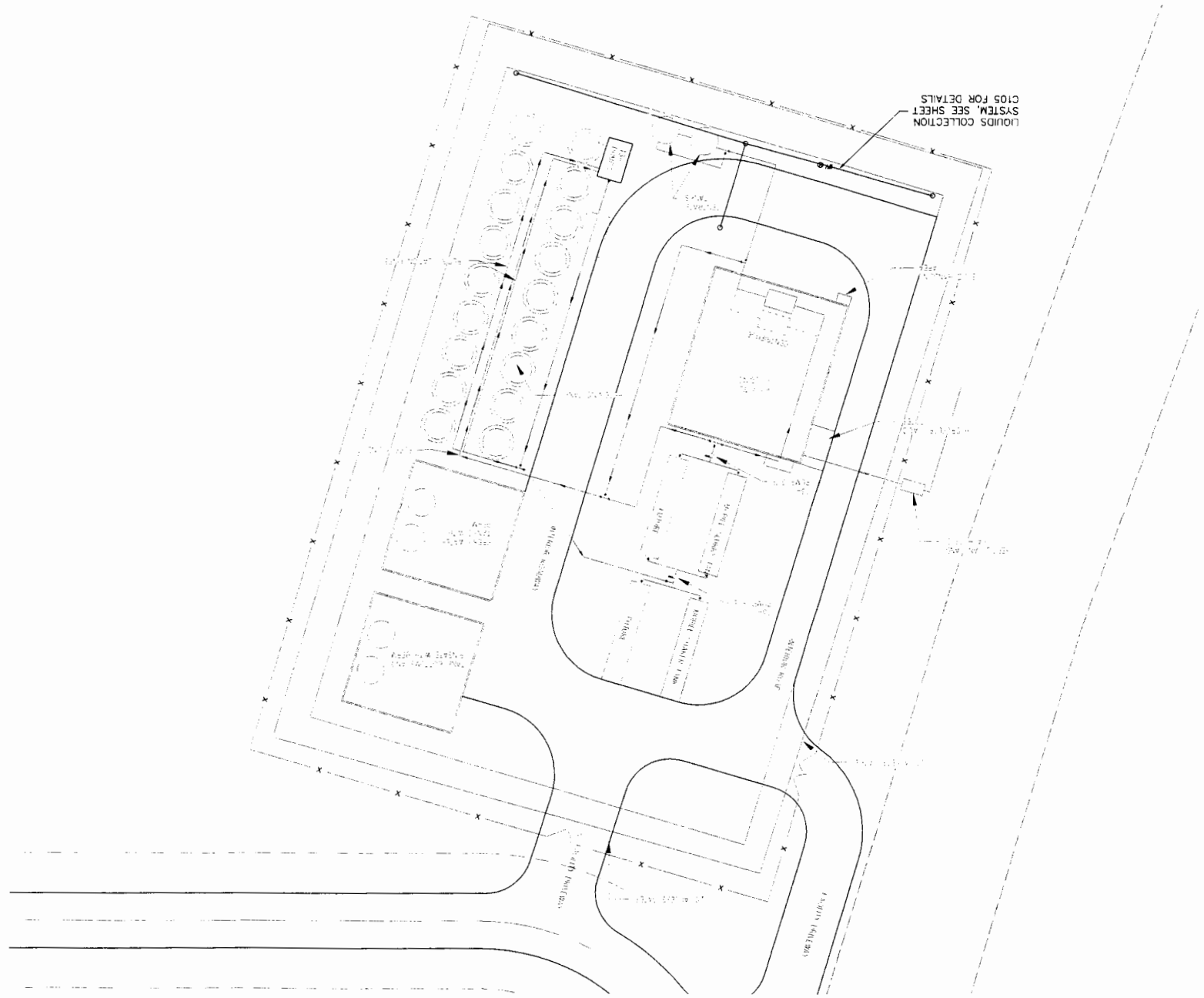
CENTRATE TANK – THE CENTRATE TANK SHALL BE A 20' DIAMETER X 16' TALL STEEL TANK OF APPROXIMATELY 900 BARRELS.

FRESH WATER TANK – THE FRESH WATER TANK SHALL BE A 12' DIAMETER X 20' TALL 400 BARREL TANK.

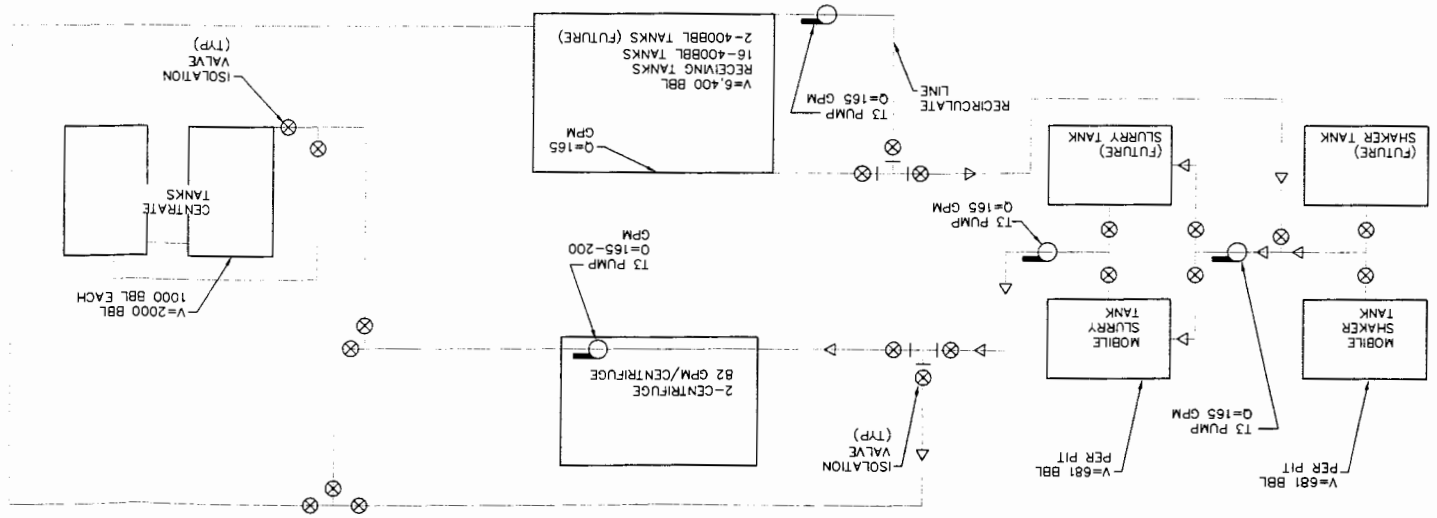
12 PUMPS – PUMPS ARE SIZED BASED UPON 10 LB/GAL WATER/SOLIDS MIXTURE AND THE RATE @ WHICH CENTRIFUGE CAN PROCESS MIXTURE.

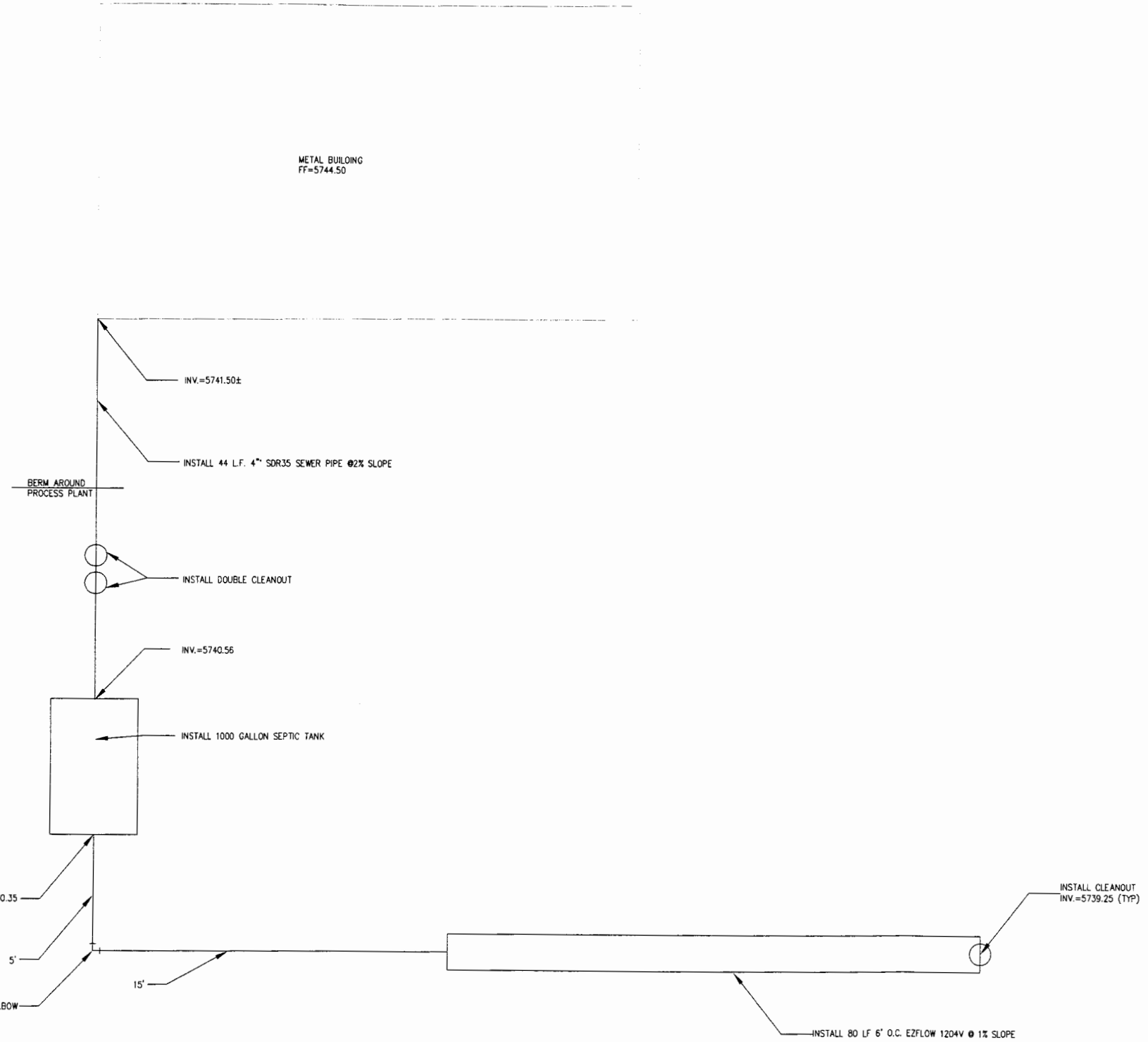
NOTE:
PUMP FLOW (Q) IS BASED UPON 10 LBS/GALLON MUD AND IS THE AVERAGE PROCESSING CAPABILITY FOR THE CENTRIFUGE. LIGHTER MUD WILL YIELD A HIGHER FLOW AND A HEAVIER MUD WILL HAVE A LOWER FLOW. IT IS IMPORTANT THAT THE OPERATOR MAINTAIN A CONSISTENT MUD WEIGHT TO OPTIMIZE FACILITY OPERATION, i.e. MUD @ OR AROUND 10 LBS/GALLON.

PLAN VIEW: PROCESS AND ENGINEER DESIGN
SCALE: 1" = 30'



PROFILE VIEW: PROCESS AND ENGINEER DESIGN
NOT TO SCALE



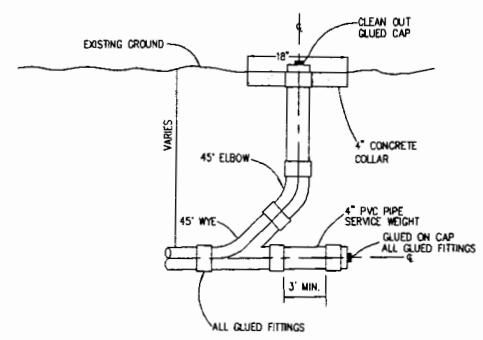


SEPTIC SYSTEM LAYOUT

NOT TO SCALE

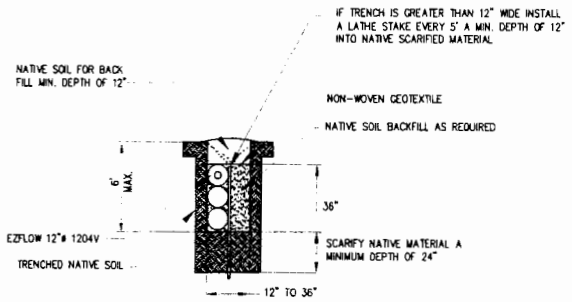
NOTES:

1. ALL SERVICE LINES SHALL CONFORM TO LOCAL PLUMBING CODE



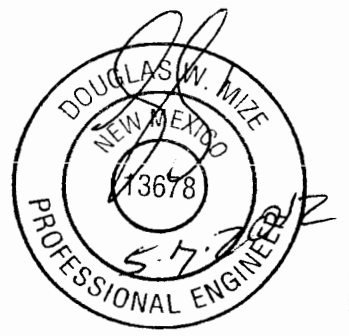
TYPICAL SEWER CLEANOUT

NOT TO SCALE



EZFLOW 1204V SYSTEM

NOT TO SCALE



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BLANCO FACILITY PROCESS ENGINEERING DESIGN
SEPTIC SYSTEM DESIGN

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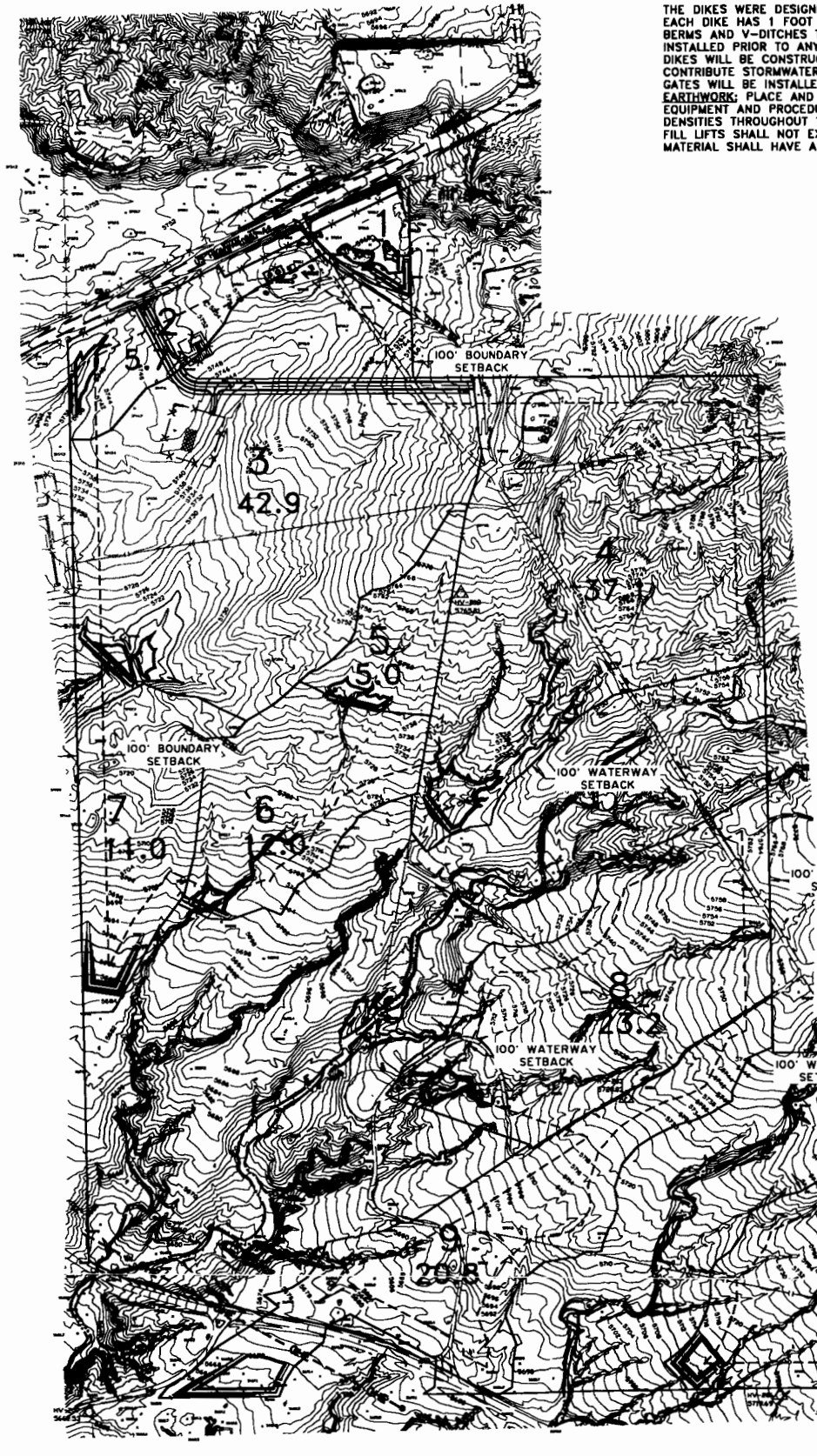
Project No. 5119829

Sheet: C109

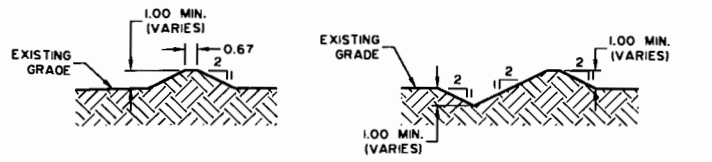
NOTES:

THE DIKES WERE DESIGNED TO RETAIN THE 25 YEAR 1 HOUR STORM.
EACH DIKE HAS 1 FOOT OF FREEBOARD AT THE SPILLWAY OVERFLOW SECTION.
BERMS AND V-DITCHES THAT PROTECT WATERWAYS WILL BE INSTALLED PRIOR TO ANY CONSTRUCTION OR REMEDIATION OF SOILS.
DIKES WILL BE CONSTRUCTED WHEN THE CELLS THAT CONTRIBUTE STORMWATER RUNOFF TO THAT DIKE BECOME ACTIVE.
GATES WILL BE INSTALLED AS NEEDED.
EARTHWORK: PLACE AND COMPACT FILL IN HORIZONTAL LIFTS, USING EQUIPMENT AND PROCEDURES THAT WILL PRODUCE RECOMMENDED DENSITIES THROUGHOUT THE LIFT.
FILL LIFTS SHALL NOT EXCEED 8 INCHES.
MATERIAL SHALL HAVE A MINIMUM OF 95% COMPACTION.



NOTE:

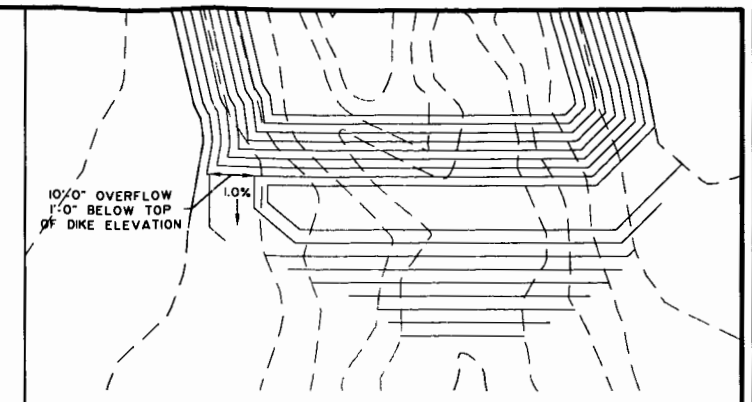
THE USE OF AN EARTH BERM MAY OR MAY NOT REPLACE THE USE OF SILT FENCE PLACEMENTS.



EARTH BERM WITHOUT DITCH
CREATE BERM BY DUMPING MATERIAL ON EXISTING SURFACE TO INTERCEPT RUNOFF WHEN NATURAL GRADES ARE PRESENT TO ENSURE DRAINAGE TO SETTLEMENT AREA.

EARTH BERM WITH DITCH
CREATE BERM BY PLOWING WINROW AND ADDING MATERIAL AS NEEDED TO FINISH BERM IN AREAS THAT WINROW WILL NOT DELIVER ENOUGH MATERIAL TO ENSURE POSITIVE CONTROL BY DITCH TO DIRECT RUNOFF TO SETTLEMENT AREA.

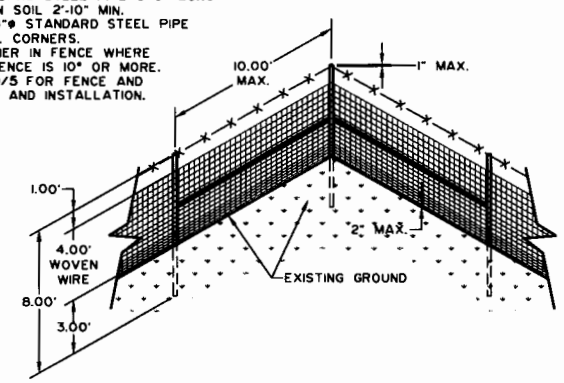
E/5 DETAIL OF EARTH BERMS FOR CELLS AND PERIMETER
SCALE 1" = 5'



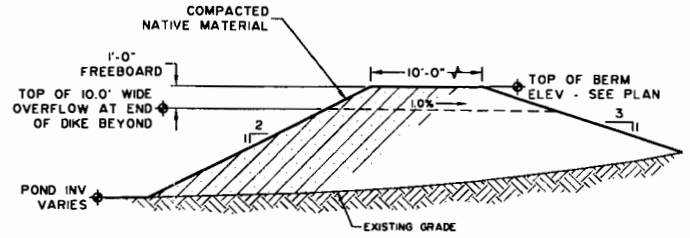
A/5 TYPICAL OVERFLOW PLAN
SCALE: 1" = 20'

NOTE:

1. USE 4"ø STANDARD STEEL PIPE 8'-0" LONG POST - EMBED IN SOIL 2'-10" MIN.
2. INSTALL 1 - 4"ø STANDARD STEEL PIPE H-BRACE AT ALL CORNERS.
3. INSTALL CORNER IN FENCE WHERE ANGULAR DIFFERENCE IS 10° OR MORE.
4. SEE DETAIL D/5 FOR FENCE AND WIRE MATERIALS AND INSTALLATION.



F/5 FIELD FENCE CORNER POST DETAIL
SCALE 1" = 5'

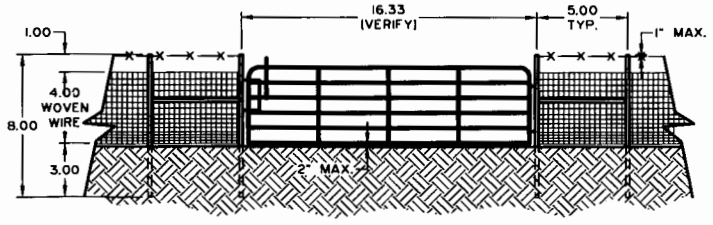


NOTES:
1. DESIGN STORM FOR POND SIZING: 25 YEAR, 1 HOUR
2. MINIMUM DEPTH OF FREEBOARD: 1 FOOT

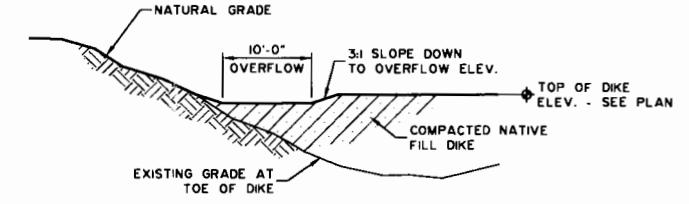
B/5 TYPICAL RETENTION POND SLOPE DETAIL
SCALE: 1/4" = 1'-0"

NOTE:

1. USE 4"ø STANDARD STEEL PIPE 8'-0" LONG POST - EMBED IN SOIL 2'-10" MIN.
2. INSTALL 1 - 4"ø STANDARD STEEL PIPE H-BRACE AT ALL GATE OPENINGS.
3. SEE DETAIL D/5 FOR FENCE AND WIRE MATERIALS AND INSTALLATION.
4. GATE TO BE 52" POWER RIVER CLASSIC GATE WITH HINGE AND LOCKABLE LEVER LATCH.
5. GATE AT ENTRY SHALL BE TWO (2) 16' GATES WITH HINGE AND CENTER LOCKABLE LEVER LATCH.



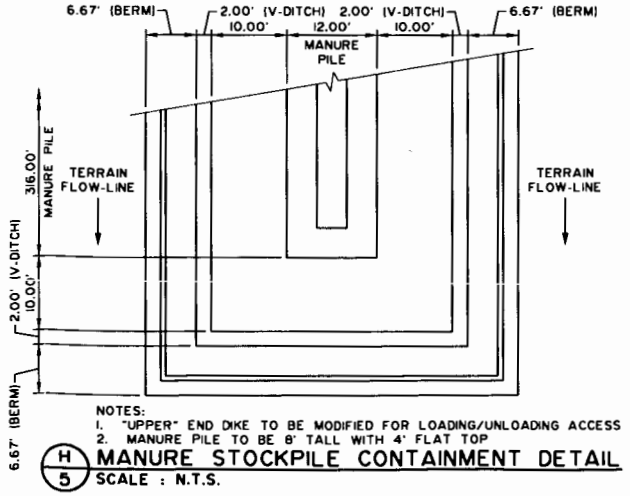
G/5 FIELD FENCE GATE INSTALLATION DETAIL
SCALE 1" = 5'



NOTE:

OVERFLOW MAY BE PLACED AT EITHER END OF THE RETENTION DIKE - SEE PLAN FOR SUGGESTED LOCATION.

C/5 DIKE OVERFLOW DETAIL
SCALE: 1" = 10'

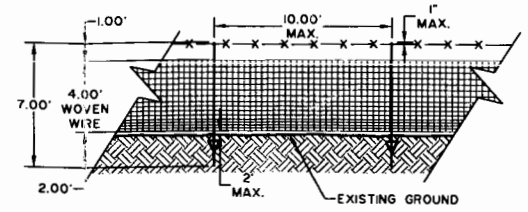


NOTES:
1. "UPPER" END DIKE TO BE MODIFIED FOR LOADING/UNLOADING ACCESS
2. MANURE PILE TO BE 8' TALL WITH 4' FLAT TOP

H/5 MANURE STOCKPILE CONTAINMENT DETAIL
SCALE : N.T.S.

NOTE:

1. USE 7.0' STEEL TEE POST DRIVE 18" TO 24" IN GROUND MAXIMUM 10' APART.
2. USE 4.0' HIGH WOVEN STEEL WIRE FIELD FENCE TIED TO TEE POST AT TOP, BOTTOM AND MIDDLE OF FENCE.
3. INSTALL 1 (ONE) STRAND TWISTED HEAVY GAGE BARBED WIRE TIED AT EACH TEE POST WITHIN 1" OF POST TOP.
4. INSTALL 1 (ONE) 4"ø STANDARD STEEL PIPE POST EVERY 100 (ONE HUNDRED) FEET OF STRAIGHT FENCE.



D/5 FIELD FENCE AND TEE POST DETAIL
SCALE 1" = 5'

BY	DATE	REVISION

PRINTED: March 29, 2012
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NO. 3634 REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO RICHARD P. CHENEY

RETENTION DIKES AND DETAILS
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE: 03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE: 1"=300'
FILE: 09467drn2
SHEET 5 OF 17

OPERATIONAL/MANAGEMENT PLAN

(19.15.36.8.C.6, 19.15.36.13 & 19.15.36.15)

Introduction

This purpose of this Waste Acceptance and Operational Management Plan is to establish the minimum requirements and procedures for acceptance, management, treatment, bioremediation and final disposal of oilfield waste. These procedures comply with the applicable requirements contained pursuant to 19.15.36.8.C.6, 19.15.36.13 and 19.15.36.15 NMAC.

This plan includes test methods, details of planned waste sampling and analysis, description of waste shipment screening/verification and operational processes.

Supervisors and employees involved in the handling of oilfield waste shall comply with these procedures. Responsible supervisor(s) and employee(s) shall make frequent inspections and collect and maintain all data as outlined under the provisions of the permit.

1. WASTE (19.15.36.13.F)

Prior to accepting RCRA Exempt Oilfield Waste from a generator, the generator must comply with the applicable requirements of this plan.

Only Non-Hazardous, RCRA Exempt waste will be accepted at the facility. These materials are wastes generated from oil and gas exploration and production operations and are usually the by-product of "down-hole" operations.

1.1 Exempt Oilfield Waste (19.15.36.13.F.1)

Exempt Oilfield Waste destined for disposal at the facility will be identified by the generator using acceptable knowledge and all applicable test and analytical methods (*refer to Section 2 Waste Acceptance*).

Exempt waste is generated by various producers from a variety of sites and by various specific processes and activities. *Examples* of the major types of operations that generate exempt waste include:

1. Hydrocarbon Impacted Soils and Gravels – Production of hydrocarbon stained soils or gravels includes spillage, line failure, leaking vessels or valves, and the reclamation of production pits.
2. Tank Bottoms – Production of tank bottoms includes tank cleaning operations -cleaning the accumulation of hydrocarbon material and other substances that settle naturally below oil in tanks and receptacles that are used in oils' handling and storing, and which accumulation contains in excess of 2% of BS&W. For lease production and lease storage tanks, tank bottoms shall be limited to that volume of the tank in which it is contained that lies below the bottom of the pipeline outlet to the tank. Generators of tank bottoms will ensure that the waste does not contain economically recoverable petroleum hydrocarbons and a visual inspection of the waste will be confirmed upon arrival at the facility.
3. Hydrocarbon Impacted Drill Cuttings-Production of drill cuttings of rock and other materials (typically called solids) removed from the borehole while drilling petroleum wells.

1.2 Emergency Non-oilfield Waste (19.15.36.13.F.3)

The facility may accept non-hazardous, non-oilfield waste in an emergency and only if ordered by the department of public safety.

1.3 Waste Characterization

Characterization requirements for individual shipments of Exempt Oilfield Waste are specified on a waste stream basis. A waste stream is defined as waste material generated from a single site and a single process or an activity that is similar in material, physical form, and constituents. *Examples* of Exempt Oilfield Waste include:

1. Petroleum Hydrocarbon impacted soil and gravel
2. Tank Bottoms (as defined in Section 1.1 Exempt Oilfield Waste)
3. Petroleum Hydrocarbon impacted drill cuttings

1.4 Prohibited Waste:

The following waste is PROHIBITED from being disposed of at the facility:

1. Hazardous Waste
2. RCRA regulated materials
3. Waste containing NORM
4. Free Liquids - prior to placing waste in a biopile/landfarm cell, the waste will be sufficiently solidified to pass the paint filter test.

2. WASTE ACCEPTANCE (19.15.36.13.A.3, 19.15.36.13.E, and 19.15.36.15.A.)

A completed C-138 form shall be submitted to the facility prior to the shipment arriving or must accompany the shipment. Waste will NOT be accepted prior to receipt of the completed C-138 which has been executed by the generator.

Once the waste has arrived at the gate, prior to acceptance, facility personnel will ensure:

- through visual examination and review of the C-138, that the waste holds **NO** unacceptable waste;
- through visual examination and review of the C-138, that tank bottoms do not contain economically recoverable petroleum hydrocarbons (19.15.36.15.A);
- through H2S ambient monitoring, that tank bottoms do not contain Hydrogen Sulfide levels above 10 ppm (PEL);
- through "chloride content sampling", waste does not have a chloride concentration exceeding 500 mg/kg (19.15.36.13.A.3 & 19.15.36.15.A) *Landfarm is located where ground water is less than 100' but at least 50' below the lowest elevation at which the operator will "place" oil field waste;
- through "paint filter" testing, prior to placing waste in a biopile/landfarm cell, the waste is sufficiently solidified to pass the paint filter test. **Free Liquids* - Pursuant to 19.15.36.13.E. "The operator shall not place oil field waste containing "free liquids" in a landfarm cell. The operator shall use the paint filter test (Method 9095 of SW-846) to determine conformance. *"Free liquids" received at the facility will be solidified by use of a centrifuge and/or with virgin or treated soils prior to placing in a landfarm cell.* (19.15.36.13.E & 19.15.36.15.A)

Anytime the facility requests additional information concerning a waste shipment, the generator will provide the necessary analysis and other supporting documentation to verify the contents of the shipment in question.

2.1 Denied/Rejected Waste

Shipments of waste which do not meet the acceptance criteria shall be Denied/Rejected at the gate. The generator of the waste will be notified immediately that the waste had been denied/rejected and given the specifics as to why it has been denied/rejected. Copies of the C-138 indicating the waste has been Denied/Rejected will be kept on file.

3. FORMS

The following forms, specific to landfarms, will be utilized by the facility as required.

3.1 Form C-138 (19.15.36.13.F.1, 19.15.36.13.F.2, and 19.15.36.13.F.3)

All material (exempt and emergency non-oilfield waste), arriving at the facility must be accompanied by a "C-138-Request for Approval to Accept Solid Waste" (ADDENDUM A). The facility shall be responsible for the procurement and review of the C-138 and characterization information to verify compliance with the NMOCD permit.

C-138 forms are a permit requirement and must contain the following:

1. Generator name and address
2. Originating Site
3. Location of Material (Address or ULSTR)
4. Source and Description of Waste
    - Waste status: **EXEMPT** as defined by the 1988 RCRA act.
    - Hazardous waste is PROHIBITED and will NOT be accepted into the facility.
5. A. Generator representative signature - certifying the waste conforms with RCRA and US Environmental Protection Agency's regulatory determination that the waste is RCRA Non-Hazardous Exempt waste.
    B. Representative/Agent signature – certifying the waste samples have been subjected to the paint filter and chloride content tests and that said samples have been found to conform to specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. (Results are attached to the C-138)
6. Transporter of the waste
7. Name, Permit #, Address, Method of Treatment/Disposal, Acceptance Status: Approved or Denied (must be maintained as permanent record), and
8. Authorization from facility personnel to dispose of the waste

C-138 forms can be accepted on a monthly, weekly, or per load basis.

3.2 Form C-133 (19.15.36.13.D)

A division approved C-133 "Authorization to Move Produced Water" (ADDENDUM B) shall accompany the transporter of the waste. Copies can be kept on file for future reference.

Form C-133 must contain the following:

1. Transporter name, address and phone number
2. State Corporation Commission Permit Number
3. Signature of authorized agent/responsible party
4. State approval Officer and title

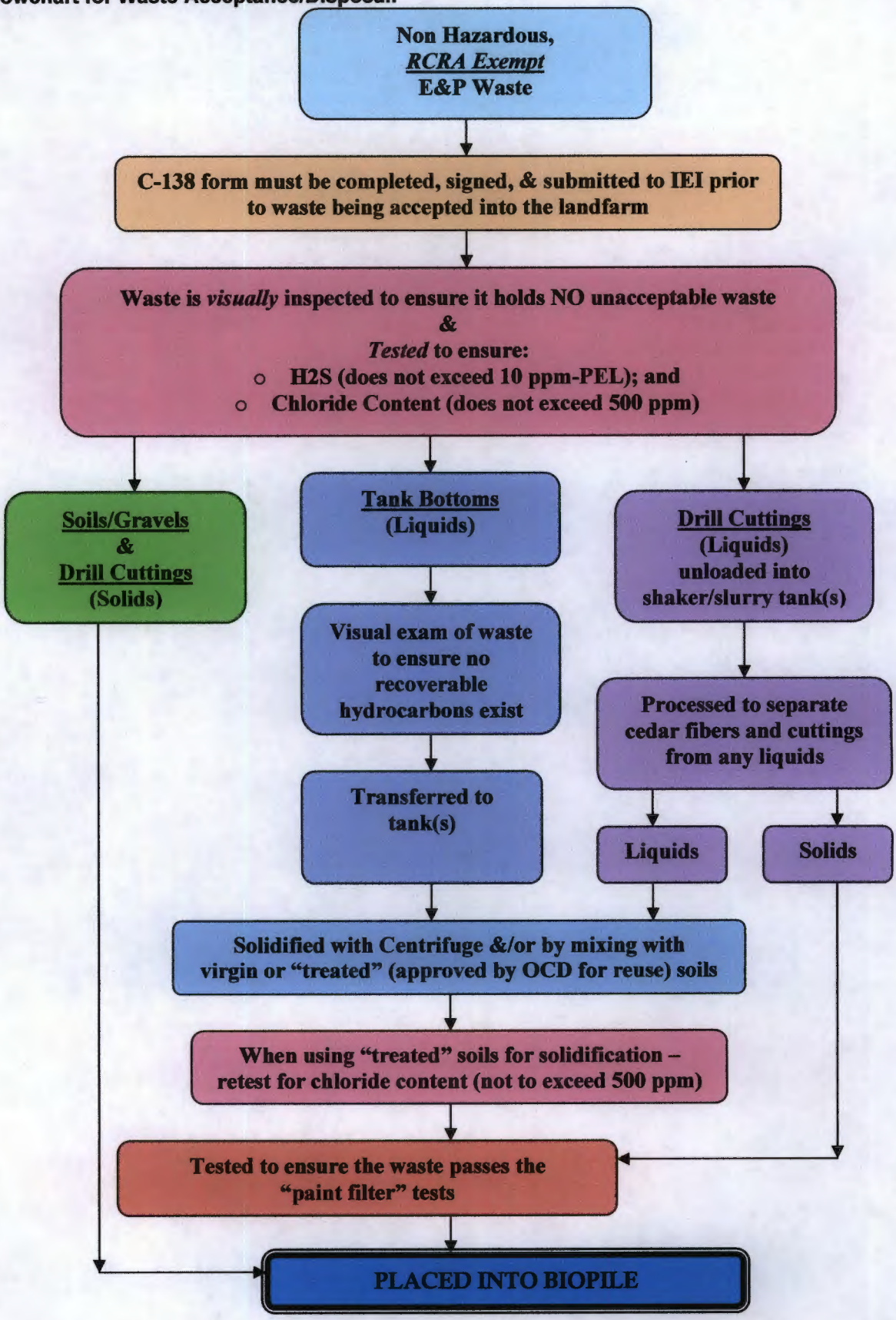
3.3 Form Department of Public Safety Order (19.15.36.13.F.3)

A department of public safety order, subject to division inspection, must accompany any emergency non-oilfield waste accepted at the facility along with a completed C-138 form.

4. DISPOSAL (19.15.36.13.H)

Disposal at the facility will only occur when an employee/attendant is on duty. The facility will be secured to prevent unauthorized disposal.

4.1 Flowchart for Waste Acceptance/Disposal:



4.2 Migratory Bird Protection (19.15.36.13.I)

To protect migratory birds, the open top shaker/slurry tanks will be screened with removable (for periodic maintenance) expanded metal.

5.0 TREATMENT/BIOREMEDIATION (19.15.36.15.C)

Within 72 hours of receipt, *contaminated* soils shall be spread and disked in 8" or less lifts or approximately 1000 cy per acre per 8" lift or biopile (19.15.36.15.C.4 NMAC).

*The maximum thickness of *contaminated* soils shall not exceed 2' or approximately 3000 cy per acre. (refer to Section 7.1 Treatment Zone Monitoring 19.15.36.15.D).

Alternative landfarm treatment procedures may be used if demonstration can be made that they provide equivalent protection of fresh water, public health/safety and the environment, with prior division approval (19.15.36.15.C.10).

*All setback requirements will be met and areas/portions of cells may be unusable).

5.1 Hydrocarbon Impacted Soils & Gravels

Upon meeting waste acceptance criteria (refer to Section 2 Waste Acceptance), hydrocarbon stained soils and/or gravel material is:

1. Placed into a "under construction" biopile/lift. The "under construction" phase is completed once a biopile reaches approximately 750 cy and/or upon generator notification that all materials associated with the "C-138" have been delivered (biopiles may contain materials from more than one generator and/or more than one location);
2. Waste specific to each biopile is recorded by use of the "Biopile Records" form which contains the following information: Generator(s) of Material, Origin of Material, Type and Volume of Waste, Transported By/Truck #, Date Received;
3. During the "construction" phase, the remediation process is started by adding organic waste (manure-*obtained from Sunray Park & Casino race track*) or *chemical enhancers to accelerate the decomposition of hydrocarbons. IEI currently utilizes manure to mix with *contaminated* soils at a 2:1 (waste:manure) ratio. **In the event chemical enhancers were to be utilized, IEI would provide the corresponding MSDS to the Division and approval would be obtained prior to applying chemical enhancers (microbes) to soils (19.15.36.15.C.7);*
4. Once the biopile is completed (reaches approximately 750 cy- 12' base x 4' top x 8' height x 316' length) no other waste will be added, a cell location and number is assigned. Biopile numbers are assigned in consecutive order and numbers are never reused;
5. During the remediation process biopile temperatures are monitored on a weekly basis. Biopile temperatures fluctuate, however, the optimal temperature range for the biodegradation process is 77° - 140 ° F.
6. Additional remediation materials (manure & moisture) may be added to maintain and control decomposition of hydrocarbons;
7. Soils will be turned with an excavator monthly (19.15.36.15.C.5);
8. Moisture will be added to the soils to enhance the bioremediation process and to help control fugitive dust emissions (19.15.36.15.C.6);
9. Soil samples are taken at regular intervals and tested by independent laboratories. A "Chain of Custody" form accompanies all lab samples. Laboratory results are used to determine if further remediation is required and results are kept on file (refer to Section 7.1 Treatment Zone Monitoring)

5.2 Hydrocarbon Impacted Drill Cuttings

Drill Cuttings-Solids

Upon meeting waste acceptance criteria (refer to Section 2 Waste Acceptance), drill cuttings are:

1. Placed into a "under construction" biopile/lift. The "under construction: phase is completed once a biopile reaches approximately 750 cy and/or upon generator notification that all materials associated with the "C-138" have been delivered (biopiles may contain materials from more than one generator and/or more than one location);
2. Waste specific to each biopile is recorded by use of the "Biopile Records" form which contains the following information: Generator(s) of Material, Origin of Material, Type and Volume of Waste, Transported By/Truck #, Date Received;
3. During the "construction" phase, the remediation process is started by adding organic waste (manure-*obtained from Sunray Park & Casino race track*) or *chemical enhancers to accelerate the decomposition of hydrocarbons. IEI currently utilizes manure to mix with *contaminated* soils at a 2:1 (waste:manure) ratio. **In the event chemical enhancers were to be utilized, IEI would provide the corresponding MSDS to the Division and approval would be obtained prior to applying chemical enhancers (microbes) to soils (19.15.36.15.C.7);*
4. Once the biopile is completed (reaches approximately 750 cy-approximately 12' base x 4' top x 8' height x 316' length) no other waste will be added, a cell location and number is assigned. Biopile numbers are assigned in consecutive order and numbers are never reused;
5. During the remediation process biopile temperatures are monitored on a weekly basis. Biopile temperatures fluctuate, however, the optimal temperature range for the biodegradation process is 77° - 140 ° F.
6. Additional remediation materials (manure & moisture) may be added to maintain and control decomposition of hydrocarbons;
7. Soils will be turned with an excavator monthly (19.15.36.15.C.5);
8. Moisture will be added to the soils to enhance the bioremediation process and to help control fugitive dust emissions (19.15.36.15.C.6);
9. Soil samples are taken at regular intervals and tested by independent laboratories. A "Chain of Custody" form accompanies all lab samples. Laboratory results are used to determine if further remediation is required and results are kept on file (refer to Section 7.1 Treatment Zone Monitoring).

Hydrocarbon Impacted Drill Cuttings-Liquids

Upon meeting waste acceptance criteria (refer to Section 2 Waste Acceptance), drill cuttings are:

1. Offloaded into the above ground shaker/slurry tank(s); once in the processing area, truck backs up on elevated ramp and offloads into the shaker/slurry tank(s);
2. Processed to separate cedar fibers and cuttings from any liquids;
3. Solidified by processing through the centrifuge and/or mixing any remaining liquid with soils (virgin and/or *treated soils). The "Tank Solidification Record form (ADDENDUM E) will be used to record the type (virgin or *treated) of soil, the amount of soil, and to ensure waste conforms to the paint filter and chloride content (when using treated soils) requirements. The date & quantity of treated soils will also be logged on the Biopile Records form (ADDENDUM F). Also refer to Section 8.0 Treatment Zone Closure Performance Standards, 11.3 Tank Solidification Record and 11.4 Biopile Record forms. **Treated Soils=Soils which have been remediated to the higher of the background concentrations or which have met closure performance standards (19.15.36.15.F NMAC) and which have received prior division approval to reuse or recycle (19.15.36.15.G NMAC);*
4. Placed into a "under construction" biopile. The "under construction" phase is completed once a biopile reaches 750 cy and/or upon generator notification that all materials associated with the "C-138" have been delivered (biopiles may contain materials from more than one generator and/or more than one location);
5. Waste specific to each biopile is recorded by use of the "Biopile Records" form which contains the following information: Generator(s) of Material, Origin of Material, Type and Volume of Waste, Transported By/Truck #, Date Received;
6. During the "construction" phase, the remediation process is started by adding organic waste (manure-*obtained from Sunray Park & Casino race track*) or *chemical enhancers to accelerate the decomposition of hydrocarbons. IEI currently utilizes manure to mix with drill cuttings at a 2:1 (waste:manure) ratio. **In the event chemical enhancers were to be utilized, IEI would provide the corresponding MSDS to the Division and approval would be obtained <u>prior</u> to applying chemical enhancers (microbes) to soils (19.15.36.15.C.7);*
7. Once the biopile is completed (reaches approximately 750 cy- 12' base x 4' top x 8' height x 316' length) no other waste will be added, a cell location and number is assigned. Biopile numbers are assigned in consecutive order and numbers are never reused;
8. During the remediation process biopile temperatures are monitored on a weekly basis. Biopile temperatures fluctuate, however, the optimal temperature range for the biodegradation process is 77° - 140 ° F.
9. Additional remediation materials (manure & moisture) may be added to maintain and control decomposition of hydrocarbons;
10. Soils will be turned with an excavator monthly (19.15.36.15.C.5);
11. Moisture will be added to the soils to enhance the bioremediation process and to help control fugitive dust emissions (19.15.36.15.C.6);
12. Soil samples are taken at regular intervals and tested by independent laboratories. A "Chain of Custody" form accompanies all lab samples. Laboratory results are used to determine if further remediation is required and results are kept on file (refer to Section 7.1 Treatment Zone Monitoring).

5.3 Tank Bottoms

Upon meeting waste acceptance criteria (refer to Section 2 Waste Acceptance), tank bottoms are:

1. Offloaded into the above ground tank(s)- once in the processing area, truck backs up on elevated ramp and offloads; all waste is processed through the shaker/slurry tank(s), waste is sent through underground line to above ground enclosed storage tank(s);
2. Solidified by processing through the centrifuge and/or mixing any remaining liquid with soils (virgin and/or *treated soils). The "Tank Solidification Record form (ADDENDUM E) will be used to record the type (virgin or *treated) of soil, the amount of soil, and to ensure waste conforms to the paint filter and chloride content (when using treated soils) requirements. The date & quantity of treated soils will also be logged on the Biopile Records form (ADDENDUM F). Also refer to Section 8.0 Treatment Zone Closure Performance Standards, 11.3 Tank Solidification Record form and 11.4 Biopile Record forms. **Treated Soils=Soils which have been remediated to the higher of the background concentrations or which have met closure performance standards (19.15.36.15.F NMAC) and which have received prior division approval to reuse or recycle (19.15.36.15.G NMAC);*
3. Placed into a "under construction" biopile. The "under construction" phase is completed once a biopile reaches 750 cy and/or upon generator notification that all materials associated with the "C-138" have been delivered (biopiles may contain materials from more than one generator and/or more than one location);
4. Waste specific to each biopile is recorded by use of the "Biopile Records" form which contains the following information: Generator(s) of Material, Origin of Material, Type and Volume of Waste, Transported By/Truck #, Date Received;
5. During the "construction" phase, the remediation process is started by adding organic waste (manure-*obtained from Sunray Park & Casino race track*) or *chemical enhancers to accelerate the decomposition of hydrocarbons. IEI currently utilizes manure to mix with *contaminated* soils at a 2:1 (waste:manure) ratio. **In the event chemical enhancers were to be utilized, IEI would provide the corresponding MSDS to the Division and approval would be obtained <u>prior</u> to applying chemical enhancers (microbes) to soils (19.15.36.15.C.7);*
6. Once the biopile is completed (reaches approximately 750 cy-12' base x 4' top x 8' height x 316' length) no other waste will be added, a cell location and number is assigned. Biopile numbers are assigned in consecutive order and numbers are never reused;
7. During the remediation process biopile temperatures are monitored on a weekly basis. Biopile temperatures fluctuate, however, the optimal temperature range for the biodegradation process is 77° - 140 ° F.
8. Additional remediation materials (manure & moisture) may be added to maintain and control decomposition of hydrocarbons;
9. Soils will be turned with an excavator monthly (19.15.36.15.C.5);
10. Moisture will be added to the soils to enhance the bioremediation process and to help control fugitive dust emissions (19.15.36.15.C.6);
11. Soil samples are taken at regular intervals and tested by independent laboratories. A "Chain of Custody" form accompanies all lab samples. Laboratory results are used to determine if further remediation is required and results are kept on file (refer to Section 7.1 Treatment Zone Monitoring).

5.4 Centrate Water (Wastewater)

Centrate Water – produced in conjunction with the use of decanter (dewatering) centrifuges used to separate and thicken solids with the end waste product being centrate water.

As per 19.15.34.12.B (Methods for Disposal of Produced Water) *use in accordance with a division-issued permit or other division authorization* & 19.15.34.13 (Methods for Disposal of Other Oil Field Waste) persons shall dispose of other oil field waste by transfer to an appropriate permitted or registered SWMF or injection facility or *applied to a division-authorized beneficial use.*

As per NMAC 19.15.36.15.C.6-The operator shall add moisture, as necessary, to enhance bioremediation and to control blowing dust. The reuse of our "centrate" water would be used for this purpose while also allowing us to reduce waste.

It is proposed that centrate water be recycled and reused on the facility to assist with the remediation process by adding moisture to the biopiles while also allowing for the reduction of waste.

Procedures/protocols will be implemented to ensure that adding centrate water to each specific biopile will allow for the addition of moisture without exceeding the Treatment Zone Closure Standards (19.15.36.15.F.4) for chloride concentrations- as determined by EPA method 300.1, shall not exceed 500 mg/kg if the landfarm is located where ground water is less than 100 feet but at least 50 feet below the lowest elevation at which the operator will pace oil field waste.

The following procedures/protocols will be implemented as follows:

- Specific biopile is tested for chloride content and documented on the "Allowable Chloride in Water Calculation" spreadsheet;
- Centrate water is tested for chloride content and documented on the "Allowable Chloride in Water Calculation" spreadsheet;
- Input biopile chloride content into the "Allowable Chloride in Water Calculation" spreadsheet to determine what the centrate chloride concentration limit will be for each specific biopile to ensure that Treatment Zone Closure Standards of 500 mg/kg (ppm) are not exceeded; and
- Test biopile for chloride content (performed once again after the centrate water has been added.

A copy of the "Allowable Chloride in Water Calculation" form (Addendum H) will be kept with the specific biopile record. The date the centrate water is added to the biopile will also be recorded on the "Biopile Temperature & Maintenance Record" form. (Addendum G).

Centrate water which is deemed unacceptable for recycling/reuse would be transported to a permitted injection facility. *Liquid oilfield waste can be transferred offsite by a transporter possessing an approved C-133 (copy of the State approval form should be kept in the vehicle).

6.0 BACKGROUND TESTING (19.15.36.15.B)

To establish background soil concentrations for the facility, prior to beginning operations, background sampling shall be collected and analyzed as follows:

- Soils samples shall be taken from at least 6" below the original ground surface;
- 12 composite soil samples (at a minimum) shall be collected, each sample shall consist of 16 discrete samples;
- Samples will be tested for:
  - TPH (EPA 418.1);
  - BTEX (EPA SW-846 8021B or 8260B);
  - Chloride (EPA 300.0);
  - Constituents of Subsections A & B of 20.6.2.3103 NMAC

Refer to binder Section 19.15.36.15.B Background Testing to review Background Testing Results.

7.0 MONITORING (19.15.36.15.D & 19.15.36.15.E)

Waste streams are strictly monitored and controlled from entry into the facility through the remediation process to state approval for final disposition.

7.1 Treatment Zone Monitoring (19.15.36.15.D)

Within 72 hours after receipt, contaminated soils shall be placed into a biopile or shall be spread and disked in 8" or less lifts or approximately 1000 cy per acre per 8" lift or biopile (proposed biopile size will be approximately 750 cy - 12' base x 4' top x 8' height x 316' length).

Treatment zone monitoring will be conducted to ensure soils meet the following criteria:

- TPH concentrations (EPA SW-846 8015M or EPA 418.1) do not exceed 2500 mg/kg;
- Chloride concentrations (EPA 300.0) do not exceed 500 mg/kg (groundwater is less than 100' but at least 50' below the lowest elevation at which the operator will "place" oil field waste;

Treatment zone monitoring shall be completed semi-annually. A minimum of one composite soil sample, consisting of four discrete samples will be collected and analyzed from the treatment zone (also refer to Binder Section 19.15.36.8.C.9- Closure/Post-Closure Plan).

The maximum thickness of *contaminated* soils shall not exceed 2' or approximately 3000 cy per acre. It is proposed that the size of each biopile will be approximately 750 cy - 12' base x 4' top x 8' height x 316' length. It is estimated that the total number of biopiles equivalent to the maximum thickness of treated soils allowed in a "landfarm cell" would be 4 biopiles per acre = 40 biopiles per landfarm cell (10 acre cells).

Upon reaching the maximum thickness (2' or approximately 3000 cy/acre), additional oilfield waste will not be placed in the landfarm cell until it is demonstrated by monitoring the treatment zone at least semi-annually that the *contaminated* soil has been treated to the standards specified in 19.15.36.15.F NMAC or the *contaminated* soils have been removed to a division-approved SWMF.

7.2 Vadose Zone Monitoring (19.15.36.15.E)

IEI will monitor the vadose zone beneath the "treatment zone" in each active landfarm cell being used to treat *contaminated* soils. IEI will take vadose zone samples from soils between 3' – 4' below the cell's original ground surface (19.15.36.15.E.1)

Vadose zone monitoring records shall be maintained at the facility office or facility records storage and made available for division inspection upon request.

SEMI-ANNUAL MONITORING (19.15.36.15.E.2)

Semi-annual vadose zone sampling will be performed to monitor the ground beneath the "treatment zone" in each active landfarm cell being used to treat *contaminated* soils. TPH (EPA SW-846 8015M or 418.1), BTEX (EPA SW-846 8021B or 8260B) & Chloride (EPA 300.0) levels shall be analyzed and results shall be compared to the higher of the PQL or background soil concentrations to determine whether a release has occurred.

Sampling of the vadose zone shall meet the following criteria:

- Samples will be taken from soils 3' - 4' below the original ground surface of the "treatment zone" in each active landfarm cell, by use of a hand auger;
- A minimum of four, randomly selected, independent samples shall be collected and analyzed;
- Sampling locations will be backfilled and sealed with bentonite chips and the original soil which was cut from the borehole.

FIVE YEAR MONITORING (19.15.36.15.E.3)

Vadose zone sampling will be performed to monitor the ground beneath the "treatment zone" in each active landfarm cell being used to treat *contaminated* soils. The constituents of Subsections A & B of 20.6.2.3103 NMAC shall be determined by EPA SW-846 methods 6010B or 6020 (or other methods approved by the division) and results shall be compared to the higher of the PQL or background soil concentrations to determine whether a release has occurred.

Sampling of the vadose zone shall meet the following criteria:

- Samples will be taken from soils 3' - 4' below the original ground surface of the "treatment zone" in each active landfarm cell by use of a hand auger;
- A minimum of four, randomly selected, independent samples shall be collected and analyzed;
- Sampling locations will be backfilled and sealed with bentonite chips and the original soil which was cut from the borehole.

RELEASE RESPONSE

In the event that sampling results show concentrations of TPH, BTEX, or Chloride levels exceeding the higher of the PQL or background concentrations, the following actions shall be taken:

- NMOCD shall be notified;
- Four additional randomly selected, independent samples, shall be immediately collected and analyzed for TPH, BTEX, Chlorides and the constituents listed in Subsections A & B of 20.6.2.3103 NMAC.

The re-sampling results along with a response action plan shall be submitted to NMOCD for approval within 45 days of the initial notification of a release. The response action plan shall address changes of the facility's operation to prevent further releases, and if necessary, a plan for remediating the existing *contaminated* soils.

8.0 TREATMENT ZONE CLOSURE PERFORMANCE STANDARDS (19.15.36.15.F)

Once soils have passed closure performance standards, as specified in 19.15.36.15.F, the treated/remediated soils will be:

- Left in place; and/or
- With division approval, disposed or reused (i.e. berm maintenance, used to solidify/stabilize liquid waste, etc.) in an alternate manner.

The date, quantity and reuse/recycle method (berms, solidification, spread) will be maintained/logged on the Biopile Record (also refer to # 3 of Sections 5.2 Hydrocarbon Impacted Drill Cuttings & 5.3 Tank Bottoms, and to Section 11.3 Biopile Record).

Once a landfarm cell (where *contaminated* soils are being "treated") has been filled to the maximum thickness of 2' or approximately 3000 cy per acre (each cell is 10 acres), treatment shall continue until *contaminated* soils have been remediated to the higher of the background concentrations or upon meeting closure performance standards.

Closure performance standards are met by collecting and analyzing a minimum of one composite soil sample, consisting of four discrete samples to meet the following criteria:

- Benzene (EPA SW-846 8021B or 8260B) shall not exceed 0.2 mg/kg;
- BTEX (EPA SW-846 8021 B or 8260B) shall not exceed 50 mg/kg;
- Combined fractions of DRO & GRO (EPA SW-846 8015M) shall not exceed 500 mg/kg;
- TPH (EPA SW-846 method 8021B or 8260B) shall not exceed 2500 mg/kg;
- Chloride (EPA 300.0) shall not exceed 500 mg/kg (19.15.36.13.A.3 & 19.15.36.15.A) *Landfarm is located where ground water is less than 100' but at least 50' below the lowest elevation at which the operator will "place" oil field waste; and
- The concentration of constituents listed in Subsections A & B of 20.6.2.3103 NMAC (regulated metals will be tested by U.S. EPA Method 6010B or 6020, and other constituents will be tested by appropriate U.S. EPA Methods, as approved by the division) shall not exceed the PQL or background concentrations. If exceeded, a site specific risk assessment shall be performed and shall propose closure standards based upon individual site conditions that protect fresh water, public health/safety and the environment. The assessment will be subject to division approval or waste shall be removed pursuant to 19.15.36.15.G.2. NMAC. If the result of the site specific risk assessment is a request of an alternative closure standard, IEI will comply with the requirements of 19.15.36.15.G.4.

9.0 FINAL DISPOSITION OF TREATED SOILS (19.15.36.15.G)

Upon achieving treatment zone closure performance standards, treated/remediated soils will be left in place or, with division approval, will be reused (i.e. berm maintenance, used to solidify/stabilize liquid waste) or disposed of in an alternate manner (19.15.36.15.G.1)

Failure to meet closure performance standards within five (5) years, or as extended by NMOCD, shall require the removal of the *contaminated* soils from the landfarm cell to be disposed of at a division-permitted landfill, or reuse or recycle it in a manner approved by the division as set forth in (19.15.36.15.G.2).

In the event that closure performance standards are not met within five (5) years, or as extended by NMOCD, the division may require a modification to the financial assurance, as provided in 19.15.36.11.G, to provide for the appropriate disposition of *contaminated* soil in a manner acceptable (19.15.36.15.G.3).

An alternative soil closure standard may be submitted to the division for approval, with division-approved public notice of an application, for alternative soil closure standard in the manner provided in 19.15.36.9 (19.15.36.15.G.4).

10. OPERATIONAL (19.15.36.15.C)

10.1 Facility Identification (19.15.36.13.J)

Signage will be posted outside of the facility entrance and will comply with the following requirements:

- Readable from a distance of 50';
- Will provide the facility Name, Operator's Name and Permit Number;
- Will provide the facility's location by Unit Letter, Section, Township, Range (ULSTR); *and*
- Will provide Emergency Contact Name(s) and Number(s)

10.2 Facility Requirements (19.15.36.13.B & 19.15.36.13.C)

As per SWMF requirements, the landfarm will not be:

- within 200' of a watercourse, lakebed, sinkhole or playa lake (arroyos will be bermed using "virgin" soils);
- Located within an existing wellhead protection area or 100 year floodplain;
- Located within, or within 500' of a wetland;
- Located within the area overlying a subsurface mine;
- Located within 500' from the nearest permanent residence, school, hospital, institution or church in existence at the time of initial application;
- Located within an unstable area; *and*
- More than 500 acres

*Also refer to Binder Section 19.15.36.8.C.4-Description of Facility & Diagram

10.3 Berms (19.15.36.15.C.1)

Landfarm cells will be bermed to prevent rainwater run-on/off.

10.4 Freestanding Liquids (19.15.36.15.C.8)

Freestanding liquids will be removed from the facility within 24 hours. This will be accomplished by use of water or king vacuum trucks.

10.5 Placement of Contaminated Waste (19.15.36.15.C.2 & 19.15.36.15.C.3)

Contaminated waste will not be placed within 100' of the facility's boundaries or within 20' of a pipeline crossing the facility.

10.6 Spill Reporting & Corrective Action Provisions (19.15.36.13.K)

The facility will comply with spill reporting and corrective action provisions of 19.15.30 NMAC or 19.15.29 NMAC as outlined in the company Spill Prevention Control & Contingency Plan (also refer to binder Section SPCC).

10.7 Monthly Inspections & Maintenance Activities (19.15.36.13.L)

The facility will comply with inspection and maintenance plan provisions of 19.15.36.13.L.3 NMAC (also refer to binder Section 19.15.36.8.C.7- Inspection & Maintenance Plan).

10.8 Run On/Off Water Control (19.15.36.13.M)

The facility will comply with provisions of 19.15.36.13.M to control run-on and run-off water. Run on/off control systems shall prevent flow onto the facility's *active* portions during the peak discharge from a 25 year storm. Run-off from the facility's *active* portions shall not be allowed to discharge a pollutant to the waters of the state or United States that violates state water quality standards.

- Run-on waters shall be diverted around the facility by use of v-ditches and earthen berms to prevent flow onto the *active* portions of the facility.
- Run-off waters shall be diverted into the designated retention ponds/dikes. (Also refer to binder Section 19.15.36.8.C.11- Run on/off Control Plan)

Additional best management practices which will be used to control run on/off waters:

- Divert clean stormwater (e.g. roof run-off) away from *contaminated* areas and into stormwater settling ponds.
- Use liners and berms around disposal areas to capture *contaminated* stormwater and process wastewater.
- Direct stormwater from the site to an on-site settling pond, or series of ponds. It is proposed that stormwater be reused in the remediation process by recycling/reusing to add as moisture to the biopiles, when it meets acceptable reuse criteria (*determined using the "Allowable Chloride in Water Calculation" spreadsheet to ensure moisture is added without exceeding the Treatment Zone Closure Standards (19.15.36.15.F.4) for chloride concentrations- as determined by EPA method 300.1, shall not exceed 500 mg/kg if the landfarm is located where ground water is less than 100 feet but at least 50 feet below the lowest elevation at which the operator will pace oil field waste. does not contain chloride concentrations exceeding 500 ppm). * Stormwater not meeting the criteria would be transferred to an appropriate permitted injection facility by a transporter possessing an approved C-133 (copy of the State approval form should be kept in the vehicle).
- Protect storm drain inlets from waste runoff.
- Develop a routine yard and equipment maintenance program to considerably reduce the potential for discharge of sediment to the wastewater collection and recycling system.
- Seal above ground fuel and chemical additive storage areas with liners and berms to contain spills and leaks.
- Manure used in the bioremediation process will be placed into pile(s) and will be bermed (secondary containment) within a bermed cell to prevent run-off.

10.9 Contingency Plans (19.15.36.8.C.8, 19.15.36.8.C.10, 19.15.36.13.N, & 19.15.11)

The facility will comply with provisions of 19.15.36 & 19.15.11 NMAC regarding requirements for contingency plans which apply to Surface Waste Management Facilities.

The facility will comply with provisions of 19.15.36.8.C.8 & 19.15.11 NMAC to have a H2S contingency plan in place (refer to binder Section 19.15.36.8.C.8-Hydrogen Sulfide Contingency Plan).

The facility will comply with provisions of 19.15.36.13.N to have a contingency plan in place to "minimize hazards to fresh water, public health, safety or the environment from fires, explosions or an unplanned sudden or non-sudden release of contaminants or oilfield waste to air, soil, surface water or ground water (refer to binder Section 19.15.36.8.C.10- Contingency Plan).

10.10 Training Program (19.15.36.13.P)

All key personnel will receive annual training related to:

- General Operations;
- Permit Conditions;
- Emergencies;
- Proper sampling methods;
- Identification of Non-Hazardous Exempt

Training records shall be maintained at the facility office or facility records storage for no less than five (5) years and made available for division inspection upon request.

11.0 RECORDS MANAGEMENT (19.15.36.13.G & 19.15.36.15.E)

Data obtained through the plan implementation will be used to ensure the facility meets the conditions of the permit and to ensure that all waste is properly managed.

Records related to waste acceptance, sampling, material tracking, biopile temperature testing, waste status, generator, location of origin, volume/type of waste, date of disposal, trucking company, waste storage location and other applicable records will be maintained at the facility.

Said data/records will be maintained at the facility office or facility records storage and made available for division inspection upon request. Data/records shall be maintained at the facility office or facility records storage for no less than five (5) years after the closure of the facility.

11.1 Forms (19.15.36.13.G & 19.15.36.15.C.9)

In order to comply with requirements set forth in 19.15.36, the following forms will be utilized and maintained at the facility office or facility records storage:

- C-138 Request for Approval to Accept Solid Waste (ADDENDUM A);
- C-133 Authorization to Move Produced Water (ADDENDUM B);
- Material Entry Record –Short Form (ADDENDUM C) – Long Form (ADDENDUM D)
- Tank Solidification form (ADDENDUM E)
- Biopile Record (ADDENDUM F)
- Biopile Temperature Maintenance Record (ADDENDUM G)

11.2 Material Entry Record (19.15.36.13.G)

The Material Entry Record (ADDENDUM C & ADDENDUM D) contains the following information:

- Date (Date Waste is Received/Disposed of)
- Generator
- Origin of Material
- Material Transported by (Hauling Company)
- Driver's Name
- Driver's Cell Number (not required)
- Truck Number
- Logged in Corresponding Biopile Record Sheet (IEI information purposes)
- Type of Waste (Soil, Gravel, Tank Bottoms, Drill Cuttings)
- Amount of Waste (quantity in cubic yards or barrels)
- Company Representative
- Company Representative Phone Number (IEI information purposes)
- Paykey/PO Number (IEI information purposes)
- H2S Gas Test Results
- Chloride Content Test Results
- Paint Filter Test Results
- Location of Disposal within the facility ("Under Construction" Biopile #___ or Tank)
- DENIED/REJECTED
- Driver(s) Signature(s)
- Facility Attendant Signature

11.3 Tank Solidification (19.15.36.13.E &19.15.36.15.A)

The Tank Solidification Record form (ADDENDUM E) contains the following information:

- Date (Date waste is being processes/solidified)
- Tank # or name
- Solidified With (Virgin or Treated) Soils
- Amount used to solidify
- If using Treated Soils the Pile # of the treated soils and the amount used
- Paint Filter Test Results
- Chloride Content Test Results
- Employee Signature

11.4 Biopile Record (19.15.36.15.C.9)

The Biopile Record (ADDENDUM F) contains the following information:

- Name/Description of Biopile (i.e., Conoco – Drill Mud, Community – Liquids, BP – Dirt)
- Date Material is Received
- Date "Under Construction" Biopile is completed (once a biopile reaches approximately 750 cy and/or upon generator notification that all materials associated with the "C-138" have been delivered)
- Pile #
- Cell # (location of disposal within the facility)
- Generator
- Origin of Material
- Transported By/Truck #
- Quantity Received
- Date Received
- Comments

Upon meeting closure standards (19.15.36.15.F) and receiving approval from NMOCD:
Date approval Received from NMOCD to reuse/recycle or spread "treated" soils

- Cell # treated soils is spread in and/or
- Date and manner "treated" soils are reused/recycle: berm maintenance and/or solidification and the quantity used

11.5 Biopile Temperature & Maintenance Record (19.15.36.15.C.9)

The Biopile Temperature & Maintenance Record (ADDENDUM G) contains the following information:

- Page #
- Pile #
- Cell #
- Date "Under Construction" Pile is completed
- Name/Description of Biopile (i.e., Conoco–Drill Mud, Community–Liquid, BP-Dirt)
- Weekly Pile Temperature Date
- Monthly Pile "Turned" Date
- Date Moisture is added to the Pile & Source of Moisture (Fresh, Centrate or Storm Water)

11.6 Allowable Chloride in Water Calculation Spreadsheet

The Allowable Chloride in Water Calculation Spreadsheet (ADDENDUM H) contains the following information:

- Date
- Biopile # & Chloride Content
- Centrate Chloride Content
- Biopile Chloride Content (After Centrate is Added)

Spreadsheet which automatically calculates the amount of Chloride Concentration allowable:

- Amount of cy per biopile (750 cy)
- Amount of pounds, average soil density
- Chloride in Soil (enter chloride concentration of specific biopile)
- Pounds of Chloride on ppm mass basis
- Maximum amount of Chlorides allowed by Treatment Zone Closure Standards
- Pounds of Chloride in 750 cy soil, per mass basis
- Barrels of liquid
- Barrels of liquid converted to gallons
- Pounds water / gallon
- Maximum pounds of Chloride that water can contribute to soil
- Maximum allowable Chloride concentration in 80 bbls water

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
'0 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

ADDENDUM A

*Surface Waste Manage
and Generator shall
documentation available

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address:

2. Originating Site:

3. Location of Material (Street Address, City, State or ULSTR):

4. Source and Description of Waste:

Estimated Volume _____ yd^3 / bbls Known Volume (to be entered by the operator at the end of the haul) _____ yd^3 / bbls

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, _____, representative or authorized agent for _____ do hereby
Generator Signature
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☐ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. ***Operator Use Only: Waste Acceptance Frequency*** ☐ ***Monthly*** ☐ ***Weekly*** ☐ ***Per Load***

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, _____, representative for _____ authorize IEI to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, _____, representative for _____ do hereby certify that
Representative/Agent Signature
representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. Transporter:

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #:

Address of Facility:

Method of Treatment and/or Disposal:

☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other

'e Acceptance Status:

☐ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: _____ TITLE: _____ DATE: _____

SIGNATURE: _____ TELEPHONE NO.:
Surface Waste Management Facility Authorized Agent

ADDENDUM B

Submit a single copy to
Santa Fe Office

State of New Mexico
Energy Minerals and Natural Resources

Form C-133
Revised April 19, 2011

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

AUTHORIZATION TO MOVE PRODUCED WATER

Transporter Name: _____

Business (Physical) Address in New Mexico: _____

_____

Contact Mailing Address (If different): _____

_____

Business Phone: _____
Business Fax: _____

Contact Phone: _____
Contact Fax: _____

1. Attach a copy of the applicant's New Mexico Public Regulation Commission (PRC) Warrant for Transportation Services.

2. Identify the form of the applicant's business entity: (Example: corporation, limited liability company [LLC], limited partnership, limited liability partnership, partnership, sole proprietor): _____

   A. If the applicant is a corporation or LLC, provide the PRC NMSCC number: _____

   B. If the applicant is a limited partnership or limited liability partnership, provide the Secretary of State registration number: _____

   C. If the applicant is any other form of partnership, identify all partners:
   _____

   D. If the applicant is a sole proprietor, provide the name of the sole proprietor:
   _____

(Note: If the form of your business entity changes, the name of your business changes, or the business address changes, you must re-apply for authorization.)

It is the responsibility of each holder of an approved Form C-133 to comply with 19.15.34 NMAC and familiarize its personnel with that rule's requirements. Failure to move or dispose of produced water in accordance with 19.15.34 NMAC may be cause for cancellation of the Form C-133.

"I hereby certify that the information above is true and complete to the best of my knowledge and belief." (Application must be signed by person who is authorized to obligate the company applying for the permit)

Signature: _____ Date: _____

Printed Name: _____ Title: _____

E-mail Address: _____

(This space for State use)

Approved by: _____ Title: _____

Date: _____

ADDENDUM C

Industrial Ecosystems Inc.
Blanco Landfarm

Material Entry Record

Date:_____

Company Representatives Name:_____

Generator of Material:_____

Phone Number:_____

Origin of Material (Location):_____

Paykey / Purchase Order Number:_____

Material Transported by:_____

H2S Gas ☐ **Non-Detect** ☐ **Detect: Level** ____

Driver's Name: _____

Driver's Cell #: _____

_____ Chloride Content Level **attach copy of results t*

Truck Number:_____

Paint Filter Test:

☐ Logged in Corresponding BioPile Sheet

☐Passed ☐Under Construction Pile #:____

☐Failed ☐ Tank(s)

☐ DENIED / REJECTED

Type of Waste

Soil	☐	Tank Bottoms	☐
Gravel	☐	Drill Cuttings	☐

Amount of Waste

	Load #1	Load #2	Load #3	Load #4	Load #5	Load #6	Load #7	Load #8	Load #9	Load #10
Cubic Yards										
Barrels										

Driver's signature:_____

Facility Attendant's signature:_____

Short Form

ADDENDUM

Industrial Ecosytems Inc
Blanco Landfarm
Material Entry Record (Long Form)

Page ____________

GENERATOR OF MATERIAL:______________________________ COMPANY REP.______________________

PHONE #______________________

ORIGIN OF MATERIAL(LOCATION):______________________ PAYKEY/P.O# ______________________

NOTES:______________________________

H2S GAS ☐ NON-DETECT ☐ DETECT: Level ___

_____ Chloride Content Level **attach copy of results to C-138*

Type of Material: _____ Soil _____ Gravel _____ Tank Bottoms _____ Drill Mud

Paint Filter Test: ☐ Passed ☐ Under Construction Biopile #:___
☐ Failed ☐ Tanks

☐ **DENIED/REJECTED**

Date	Time	Transported by	Truck#	Yards	Barrels	Driver's Name (Print)	Driver's Signature	Attendant	Time Out

Industrial Ecosystems Inc.
Blanco Landfarm

TANK SOLIDIFICATION RECORD

Date:_____

Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____

Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____
Tank # or Name:_____

Solidified with:

☐ Virgin Soils Amount: _____ cy

☐ "Treated" Soils Pile #:_____ Amount: _____ cy

Paint Filter Test:

☐ Passed ☐ Under Construction Pile #:____

_____ Chloride Content Level

Employee Signature:_____

Tank Solidification Recor

ADDEI ;M F

BIOPILE RECORDS

IEI Industrial Ecosystems Inc.

Name/Description of Pile : _____

PILE#:_____

CELL#: _____

DATE "Under Construction" PILE COMPLETED:_____

Generator of Material	Origin of Material	Transported By/ Truck #	Quantity Received	Date Received	Comments
		TOTAL			

DATE RCV'D APPROVAL TO REUSE/RECYCLE OR SPREAD:_____ SPREAD IN CELL #:_____

Date	☑Berm Maintenance	☑Solidification of Materials from Pit(s)/Tank(s)	Quanity Reused/Recycled

Biopile Record Form

ADDENDUM G

IEI Industrial Ecosystems Inc.

20__ BIOPILE TEMPERATURE & MAINTENANCE RECORDS

Page #: ________ **Pile #:** ________________ **Cell #:** ________

Date "UNDER CONSTRUCTION" Pile Created: ______________

Name/Description of Material: ______________________________

Date	Pile Temp	Date Turned	Date Moisture Added	Check One Fresh	 Centrate	 St

Maintenance Record

ADDENDUM H

Allowable Chloride in Water Calculation

Date:_____

Biopile #_____ Chloride Content: _____

Circle Type below:
Centrate or Storm Water (SW) Chloride Content: _____

Biopile Chloride Content (After Centrate or SW is Added): _____

Soil	750	yds3
	2,227,500	pounds, assuming 110 lb/ft3 average soil density
Cl- in soil	**200**	ppm - **ENTER SOIL CHLORIDE CONCENTRATION IN PPM (MG/KG)**
	446	pounds Cl- in 750 yds3 soil, on ppm mass basis
Maximum allowed Cl- in soil	500	ppm
	1,114	pounds Cl- in 750 yds3 soil, on ppm mass basis
Water	80	barrels
	3,360	gallons
	27,989	pounds water at 8.33 lb/gallon
	668	Maximum pounds of Cl- that water can contribute to soil
	23,876	ANSWER: **Maximum allowable Cl- concentration (ppm) in 80 bbl water**

Crowe Blanco Properties, LLC / IEI Blanco
Routine Inspection & Maintenance Activities
(19.15.36.8.C.7 & 19.15.36.13.L. NMAC)

Routine inspection/maintenance activities, and the frequency conducted, are shown in Table 1.

TABLE 1

Maintenance Task	Frequency of Task
General Housekeeping (Facility/Vehicles/Equipment)	Daily
Gates & Fencing	Daily/Weekly
Freestanding Liquids (19.15.36.15.C.8)	Within 24 hours of the end of a storm
Moisture/Dust Control	Varies
Berms	Quarterly and/or within 24 hours of the end of a major rainfall or windstorm
Processing Area (Centrifuge/Tanks) (19.15.36.13.L.1)	Daily/Monthly
Monitoring Wells (19.15.36.13.L.2)	Semi-Annually
Retention Ponds (19.15.36.13.L.3)	Quarterly and/or within 24 hours of the end of a storm event (0.5" or greater) or a major windstorm

Inspections
The attached Inspection and Maintenance Checklist shall be used to conduct inspections, as specified in Table 1. The Checklist will identify routine inspections; maintenance needed, and will record corrections and/or maintenance performed.

Crowe Blanco Properties, LLC / IEI Blanco
Inspection and Maintenance Checklist

Week of/Date of Inspection: _____

Inspector(s): _____

Inspector(s): _____

Type of Inspection:

- ☐ Daily/Weekly
- ☐ Quarterly _____
- ☐ Bi-weekly (Mon & Wed)
- ☐ After heavy rainfall
- ☐ Monthly
- ☐ Semi-Annually (Jan & July)
- ☐ Other: _____
- ☐ After major windstorm

Area	Conditions When Maintenance Is Needed	Frequency of Inspection	Comments (Describe maintenance completed and if any needed maintenance was not conducted, note when it will be done.)	Results Expected When Maintenance Is Performed
General Housekeeping (Daily)				
Facility	• Stains from oils, gasoline, or other contaminants from vehicles and/or equipment visible on the ground. • Trash and debris accumulated on the facility.	____ Mon ____ Tue ____ Wed ____ Thu ____ Fri		• Stains are cleaned up and there is no visible grease, oil, gasoline, or other contaminants present on the ground in the vehicle/equipment parking area(s). • Trash and debris will be cleared from site and disposed of properly.
Gates and Fencing (Daily / Weekly)				
Gate(s) -missing or broken parts	Any defect or damage to the gate which would allow easy entry to the facility	____ Mon ____ Tue ____ Wed ____ Thu ____ Fri		Gate(s) are repaired to proper working condition.
Fence	Any defect or damage to the fence which would allow easy entry to the facility	____ Mon		Fencing is repaired to design specification.
Freestanding Liquids (Within 24 hours of the end of a storm event)				
Freestanding Liquids (19.15.36.15.C.8)	Freestanding liquids on the facility	____ After storm event		Freestanding liquids removed within 24 hours.

Moisture/Dust Control (Depends on time of year & natural precipitation received)				
Blowing Dust Has the facility received moisture w/in the last 48 hours?	During drier months when natural precipitation is not frequent and has not been received w/in the prior 48 hours Specify: □ Rain □ Snow □ Ice	____ Mon ____ Tue ____ Wed ____ Thu ____ Fri		Moisture (fresh water) will be added (sprayed with water truck) to the unpaved roadways to reduce the potential of fugitive dust emissions. Biopiles will be trenched with water to enhance the bioremediation process. ** Trenching is defined as: Use of excavator(s) to cut a trench into the top of the pile, adding moisture, and then mixing the moisture into the pile by "rolling" it.*
Berms (Quarterly and/or within 24 hours of the end of a major rainfall or windstorm event)				
Berms	• Settlement - berm settlement or berm integrity has been compromised • Erosion – eroded over 2" deep where cause of damage is still present or potential for continued erosion	____ Mar ____ June ____ Sept ____ Dec ____ After storm event		• Berm is built back to the design elevation & specifications. • Cause of erosion is managed appropriately. Side slopes or berms are restored to design specifications, as needed.
Processing Area - Metal Pits / Centrifuge / Tanks (Daily/Monthly)				
Tanks *(above ground-which allows leak detection to be covered by visual inspections)*	• Visible leaks or cracks in the walls or floor • Any visible leaks on or around the supply pump(s) • Any Stained soil around the tank(s) or hoses/pipes	____ Mon ____ Tue ____ Wed ____ Thu ____ Fri		• Waste not accepted into tanks(s) until cleaned & repaired. • Spills/Leaks cleaned from the area. • Hoses/Pipes checked for leaks & to ensure proper attachment/connection. *Spills/leaks in excess of 5 bbls shall be reported as specified in 19.15.29 NMAC.

Monitoring Wells (Semi-Annually)				
Monitoring Wells (19.15.36.13.L.2)	Must perform semi-annual inspections & sampling on all ground monitoring wells ___ MW1 ___ MW3 ___ MW4 ___ MW5 ___ MW6 ___ MW7 ___ MW8 ___ MW9 ___ MW10	____ Jan & ____ July		Pursuant to 19.15.36.13.L.2 NMAC - Semi-annual inspection & sampling of monitoring wells will be performed with analytical results, maintenance records, inspection dates, inspector and status of monitor well(s) reports furnished to NMOCD. ** MW2 will not be monitored as it has been plugged per NMOCD request.*
Retention Ponds (Quarterly & and/or within 24 hours of the end of a storm event 0.5" or greater or after a major windstorm)				
Retention Ponds (19.15.36.13.L.3)	• Stormwater runoff not directed or contained as needed • Berm settlement or berm integrity has been compromised • Eroded over 2" deep where cause of damage is still present or potential for continued erosion.	____ March ____ June ____ Sept ____ Dec		Monitor and restore the integrity of the retention pond(s) and the flow of the stormwater runoff.

Inspector(s) Signature(s): _____

_____

Hydrogen Sulfide (H2S) / CONTINGENCY PLAN

(19.15.36.8.C.8 & 19.15.11 NMAC)

Company Name: Crowe Blanco Properties, LLC / Industrial Ecosystems, Inc. (IEI)

Building Name: Main Office / Land Farm / Tank Battery

Building Address: Hwy 64 near mile marker 75 San Juan County S-16, T29N, R-09W

Emergency Coordinator: Alberta Pablo

Emergency Coordinator Phone Number: (505) 860 -4068

Designated assembly points(s):

1. North assembly point
2. NE assembly point
3. SE assembly point
4. SW assembly point
5. West assembly point

Emergency Numbers:

Fire **911** or **(505) 334-6622**

Medical **911** or (**505) 325-5011**

Sheriff's Office / Police **911** or **(505) 334-6622**

** 911 – As per Don Cooper, San Juan County Emergency Manager - San Juan County is set up on a "single dispatch & reverse 911 notification" system – all necessary emergency and HazMat responders, etc. will be dispatched from the 911 office & rapid notification is sent out to local residents and other occupants in the event of an emergency.*

Industrial Ecosystems Incorporated:

Main Office: (505) 632-1782
Contact: Marcella Marquez

HSE Department: (505) 860–4068
Contact: Alberta Pablo

Plan prepared by: Alberta Pablo
Date: June 8, 2012

TABLE OF CONTENTS

SECTION I: PURPOSE AND OBJECTIVES

Potential emergencies at the facility (Main office, Land Farm, and Tank Battery) such as a H2S release may require employees to evacuate the area immediately. An H2S / Contingency Plan (H2S CP) and adequate occupant familiarity with the buildings and land farm minimize threats to life and property. This plan applies to all emergencies where employees may need to evacuate for personal safety. This plan has been developed with due consideration of paragraph 7.6 of the guidelines in the API publication Recommended Practices for Oil and Gas Producing and Gas Processing Plant Operations Involving Hydrogen Sulfide (19.15.11.9.B.1 NMAC).

This H2S CP is intended to communicate the policies and procedures for employees to follow in an emergency situation. This written plan will be made available to employees and their designated representatives, local police, fire and medical facilities by the Primary Emergency Coordinator for the IEI properties The Primary Emergency Coordinator will be responsible for the training of residents and public officials, and coordinating the plan with local emergency committee. (A copy of the H2S Contingency plan will be available at the San Juan County Office of Emergency Management.)

Under this plan, employees will be informed of:

- The plan's purpose;
- Preferred means of reporting a H2S release;
- Emergency escape procedures and designated assembly points;
- Procedures to be followed by employees who remain to control plant operations before they evacuate;
- Procedures to account for all employees after emergency evacuation has been completed;
- Rescue and medical duties for those employees who perform them; and
- The alarm system.

Alberta Pablo is the designated Primary Emergency Coordinator (PEC) for this facility and has overall responsibility for the preparation and implementation of this plan.

Steve Abeyta is designated as an Alternate Emergency Coordinator.

Clyde Tafoya is designated as an Alternate Emergency Coordinator.

The Primary Emergency Coordinator will review and update the plan as necessary. Copies of this plan will be maintained in the facility office.

SECTION II: GENERAL GUIDELINES

The following guidelines apply to this H2S CP:

1. All personnel must be trained in safe evacuation procedures. Refresher training is required whenever the employee's responsibilities or designated actions under the plan change, and whenever the plan itself is changed.
2. The training may include use of workplace maps which clearly show the emergency escape routes included in the H2S CP. Maps should be posted at all times in main work areas to provide guidance in an emergency.
3. No employee is permitted to re-enter the work area until advised by Emergency personnel.

SECTION III: RESPONSIBILITIES OF PRIMARY EMERGENCY COORDINATOR AND/OR ALTERNATE EMERGENCY COORDINATOR(S)

The Emergency Coordinator(s) are responsible for:

1. Obtaining and posting work areas and emergency evacuation route maps.
2. Overseeing the development, communication, implementation and maintenance of the overall H2S CP.
3. Ensuring the training of building occupants, operations personnel, and notifying all personnel of changes to the plan.
4. Maintaining up to date lists of building occupants, operations personnel, and any other personnel with assigned duties under this plan.
5. In the event of an H2S release or other emergency, the primary emergency coordinator must relay applicable information to emergency personnel, occupants and operations personnel.
6. Familiarizing personnel with emergency procedures.
7. Acting as liaison between management and their work area.
8. Ensuring that occupants have vacated the premises in the event of an evacuation and for checking assigned areas.
9. Knowing where their designated assembly points is and for communicating this information to occupants.
10. Having a list of personnel on the property, so a head count can be made at their designated assembly points.
11. Obtaining the Visitor Sign-In Sheet and Material Entry Records from office personnel to determine what visitors, delivery personnel, and contractors are on the facility.
12. Ensuring that disabled persons and visitors are assisted in evacuating the building.
13. Posting the H2S Contingency Plan in their work areas, communicating plans to occupants, and updating the plan annually.
14. In the event of imminent or actual emergency situation the facility alarms will activate, to notify personnel and visitors to evacuate the facility.
15. In the event of imminent or actual emergency situation shall notify appropriate state and local agencies with designated response roles if their assistance is needed.

SECTION IV: ALERTING BUILDING / LAND FARM OCCUPANTS OF POSSIBLE H2S PRESENCE/RELEASE

Signs and Markers (19.15.11.10):

The Emergency Coordinator will prominently post signs or markers conforming to current ANSI standard Z535.1-2002 (Safety Color Code) at locations including entrance and road crossings on the facility to notify the general public that a potential danger exists, the possible presence of H2S (poison gas).

Regulatory Threshold (19.15.11.8.B)

Due to the lack of potential sources at the facility, the quantity and concentrations of H2S are limited. All trucks entering the facility with liquid waste are screened for H2S upon arrival. The screening will be completed by trained personnel using a BW Technologies motorized sampling pump. After completion of initial screening, waste containing less than 10 ppm of H2S will be accepted and placed into a holding tank or shaker/slurry tank for processing. Waste in tanks awaiting processing, will be treated with H2S Breaker if levels rise to or above 10 ppm (the NIOSH Permissible Exposure Limit). The waste will be processed through the centrifuge within a seventy two hour time period.

Activation Levels:

The CP will be implemented whenever there is a release of H2S in excess of 100 ppm in public areas, 500 pm at a public road or 100 ppm 3000 feet from the site of release.

Per NMAC 19.15.11.7, "public area" is defined as a building or structure that is not associated with the well, facility or operation for which the radius of exposure is being calculated and that is used as a dwelling, office, place of business, church, school, hospital or government building, or a portion of a park, city, town, village or designated school bus stop or other similar area where members of the public may reasonably be expected to be present. "Public road" is defined as a federal, state, municipal or county road or highway.

The emergency alarm system will activate when concentrations reach and exceed 10 ppm. The alarm system controls, located in the main IEI office building, will indicate whether the alarm was set off from the tank battery area. When the emergency alarm system activates, all employees will evacuate the area until the area can be assessed by the Emergency Coordinator. Local emergency responders will be notified that the alarms have indicated an H2S level of 10 ppm or greater, and will be updated when the assessment has been completed.

If the H2S levels are determined to be 10 ppm, the PEL, or less, employees will return to work, and the EC will continue to monitor the area manually. If H2S levels are determined to be greater than 10 ppm but less than 15 ppm, employees will be required to wear individual H2s monitors to ensure that the NIOSH Time Weighted Average Permissible Exposure Limit of 10 ppm is not exceeded during an eight hour shift.

If the H2S levels reach 10 ppm, it will be determined than an H2S release has occurred and the CP will be implemented.

Potential sources that could lead to a release of H2S sufficient to create a concentration in excess of the activation level:

- Tanks - As liquid waste is being processed through the centrifuge, H2S can be released into the atmosphere.

In the event of a H2S release (19.15.11.9):

1. The alarm system(s) will activate. The H2S sensors will be located at each gate of the tank battery and on the exterior wall of the centrifuge building. An additional H2S sensor will be located on the main entrance road to the land farm facility across from the main office. The alarm has an audio alert at 85 decibels. The alarm alerts building occupants and land farm occupants of the need to evacuate to the designated assembly points.
2. In the event of a H2S release notification to the Emergency Coordinator with pertinent information of the release location (Tank #), emergency contact telephone numbers are listed in Section X of the H2S CP.
3. County Roads 4440 and 4450 and all gated well location access roads will be road blocked to prevent entry onto the facility.
4. In the event that the Emergency Coordinator determines the need to evacuate the facility, local law enforcement and emergency response teams will be informed. Everyone shall remain at the designated assembly point(s) and await instructions from law enforcement and emergency response personnel or the on-site Emergency Coordinator.
5. If the Emergency Coordinator believes that a threat to human health or the environment outside the facility exists, s/he will notify the appropriate agencies. The Emergency Coordinator will be available to help the appropriate officials decide if evacuation of the neighboring properties is necessary. The evacuation proceedings of neighboring properties will be initiated by law enforcement or emergency response personnel.

General Public Protection from H2S at Tank Battery:

- Tank battery area will be fenced in with locking gates;
- Windsocks will be utilized to determine wind direction;
- Stairs and Ladders will be equipped with safety chains to prevent unauthorized access to the top of tank(s).
- The Emergency Coordinator will prominently post signs or markers conforming to the current ANSI standard Z535.1-2002 (Safety Color Code) at locations including entrance and road crossings on the facility to notify the general public of the possible presence of H2S (poison gas).

SECTION V: GENERAL EVACUATION PROCEDURES FOR BUILDING / FACILITY OCCUPANTS

1. When the alarm sounds indicating a release of H2S reaching 10 ppm, all personnel should ensure that nearby personnel are aware of the emergency, and head directly to the designated assembly points. Building occupants need to close doors and exit the building using evacuation routes. Employees will instruct visitors, delivery personnel and contractors on how to evacuate the area and which designated assembly points to head to.
2. Meeting site designation will be determined by the use of wind socks which will be located in several areas throughout the facility. An up-wind meeting site must be selected.
3. All occupants should proceed to their designated assembly points and await further instructions from the Emergency Coordinator. The emergency coordinator will don the appropriate PPE and search the facility for any remaining personnel.
4. The Emergency Coordinator or designee will notify the San Juan County Emergency Dispatch System by calling **"911"** in the event of a release in order to protect the public traveling on Highway 64 near the facility. The San Juan County system is a "single dispatch system" able to mobilize appropriate affected agencies and response personnel.
5. All personnel should know where primary and alternate exits are located, and be familiar with the various evacuation routes available. Floor plans and maps with escape routes, alternate escape routes, exit locations and designated assembly points are posted in the buildings and work locations.

SECTION VI: DISABLED OCCUPANTS

In the event of a H2S release reaching 10 ppm, disabled occupant(s) unable to exit the building without assistance would be provided with the appropriate supplied air/oxygen breathing device (SCBA). The disabled occupant would then wait for emergency personnel to arrive and assist with evacuation from the area. The Emergency Coordinator must notify the emergency response personnel of the person's location. Unless imminent life-threatening conditions exist in the immediate area occupied by a non-ambulatory or disabled person, relocation of the individual should be limited to a safe area.

SECTION VII: ACCOUNTABILITY PROCEDURES FOR EMERGENCY EVACUATION

Designated assembly points: Groups working together on or in the same area should meet outside the building in the prearranged designated assembly points based on wind directions (meeting site shall be upwind of the H2S source). A list and emergency evacuation route map(s) showing designated assembly points and evacuation routes is posted in the main office and work locations. A copy of the Emergency Evacuation Route Map (showing designated assembly points) is attached to this plan as Addendum "A".

Potentially affected public areas and roadways are described and noted on the Emergency Evacuation Routes map as well as the Locations of Roadblock Barricades.

Employee List: A roster of current personnel will be kept to use during emergencies to ensure that personnel are accounted for. The list will be maintained and updated by office staff and distributed to the PEC, Alternate Coordinators and all applicable personnel.

Visitors, Delivery Personnel, and Contractors are all required to sign in/out on a "Visitors List" upon entering and exiting the facility. This list will be used in the event of an emergency to account for all facility occupants.

The Emergency Coordinators are to be trained in the complete workplace layout and the various primary and alternate escape routes from the workplace. All trained personnel are made aware of employees with disabilities that may need extra assistance and of hazardous areas to be avoided during emergencies. Before leaving, the Emergency Coordinators are to don the appropriate PPE and then check rooms and other enclosed spaces in the workplace for other employees who may be trapped or otherwise unable to evacuate the area, and convey this information to emergency personnel. A list of Emergency Coordinators will be located in the main office and at each work location.

Once each evacuated employees have reached their designated assembly points, the Emergency Coordinator will:

1. Assembles his/her group at a designated assembly point;
2. Monitor the ambient concentrations of hydrogen sulfide at the designated assembly points, evaluating the initial safety of the area;
3. Take a head count and names of individuals in the group;
4. Assume the role of department contact to answer questions;
5. Instruct personnel to remain in area until further notice;
6. Report their status to the General Manager;
7. Instruct personnel to remain at designated assembly points until further notice;
8. Continue to monitor the concentrations of hydrogen sulfide in the area until the emergency is controlled and personnel are released, or moved to an alternate site;
9. If concentrations of 10 ppm or greater are detected, personnel shall be moved further away from the source, and a new designated assembly point will be established.

SECTION VIII: PUBLIC SAFETY

The following locations have been identified as public roads which could potentially be affected:

- Hwy 64 from mile marker 75 to mile marker 76;
- CR 4450 (Largo Canyon Road) where it crosses the south western areas of the facility;
- CR 4445 Entrance/Exit onto the facility;
- CR 4440 where it enters/exits the East side of the facility;

Proposed evacuation routes:

- Resident # 105 located southeast of the facility will evacuate using CR 4445 to Largo Canyon Road;
- Residents located off the facility on CR 4440 will evacuate East on CR 4440 to Hwy. 64; and
- Traffic traveling North & South on CR 4450 (Largo Canyon Road) will be restricted on an "as need" basis (the road crosses the facility on the southern boundary of the facility where H2S is not likely to cause restriction to traffic flow).

Manned road blocks will be used on the following roads that will not already have limited access due to gates being locked and secured:

- CR 4445 & CR 4440; and
- Any well location road on the facility that is not already gated.

The Emergency Evacuation Routes map attached graphically illustrates the potentially affected public areas and roadways as well as the locations of roadblock barricades and evacuation routes.

Public evacuation proceedings will be initiated and coordinated by law enforcement or emergency response personnel. San Juan County has a "Reverse 911 Notification System" to allow rapid notification of the residents and other occupants of the potentially affected areas. –Further, San Juan County is set up on a "single dispatch system" – all necessary emergency and HazMat responders, etc. will be dispatched from the 911 office.

SECTION IX: RESCUE/EMERGENCY RESPONSE/MEDICAL

In the event of an emergency including a release of hydrogen sulfide resulting in concentrations of 10 ppm or greater at the facility, staff will call 911. The facility is located in a rural area with the local volunteer fire department located approximately 1 ½ miles away. San Juan County is set up on a "single dispatch system". When 911 is contacted, the emergency dispatch will be informed of a H2S release and will relay the information to emergency and HazMat responders and will implement procedures to notify the public when necessary (19.15.11.9.B.2.a). San Juan County has a "Reverse 911 Notification System" to allow rapid notification of the residents and other occupants of the potentially affected areas.

- The Fire Department, Emergency Medical Technicians (EMT) will don the appropriate PPE and conduct all rescue and medical duties.
- Injured personnel need to be removed from the H2S release exposure area, and taken to the closest designated meeting area.
- All responding emergency personnel will be updated on the emergency situation upon arrival and will again be notified of the H2S hazard.

In the event that the Emergency Coordinator determines the need to evacuate the facility, local law enforcement and emergency response teams will be informed. Everyone shall remain at the designated assembly point(s), unless such assembly point becomes unsafe, and await instructions from law enforcement and emergency response personnel or the on-site Emergency Coordinator.

If the Emergency Coordinator believes that a threat to human health or the environment outside the facility exists, s/he will notify the San Juan County Emergency Dispatch Center through 911. The Emergency Coordinator will be available to help the appropriate officials decide if evacuation of the neighboring properties is necessary. The evacuation proceedings of neighboring properties will be initiated by law enforcement or emergency response personnel either through the San Juan County "Reverse 911 Notification System" or door-to-door contact by law enforcement.

In accordance with the NM Hazardous Material Emergency Response Plan, the Emergency Coordinator will notify the nearest state police headquarters and will coordinate and perform protective actions only to the extent that his/her knowledge and capability permit (19.15.11.9.B.2.e).

Protective actions include:

- set out warning devices/road blocks;
- take readings/measurements to determine if there is a possibility of a release of materials;
- isolate the release as much as possible to avoid exposure to the general public;
- aid first responders and emergency personnel, *as requested*;
- request a contamination check from personnel on-scene;
- provide appropriate resources for the resolution of the incident, including cleanup.

SECTION X: RESOURCE AND RESPONSIBILITIES LIST

H2S CP Organization: The following lists includes the names of employees, managers, staff or other personnel and their job titles, job positions and relative H2S CP collateral duties. The purposes served by the lists are:

1. To notify employees who to see for additional information on the H2S CP.
2. To provide emergency response personnel with a list of department personnel which may be needed in order to provide additional information about the H2S release,
3. The lists should be updated by the Primary Emergency Coordinator on an as-needed basis.

Emergency Contact Names and Numbers

Company Name: Blanco Crowe Facility/Industrial Ecosystems Incorporated

Building Name: Main Office / Land Farm / Tank Battery

Address: Hwy 64 near mile marker 75 San Juan County S-16, T29N, R-09W

Title: HSE Specialist

Name: Alberta Pablo

Location: Main Office

Telephone: (505) 860 - 4068

Title	Name	Responsibilities re H2S Contingency Plan	Location	Telephone
Primary Emergency Coordinator	Alberta Pablo	Primary assessment and on-site notification	Main Office	(505) 860-4068
Alternate Emergency Coordinator	Clyde Tafoya	Assessment and on-site notification; continuing monitoring; mitigation of release source	Land Farm	(505) 860 -7360
Alternate Emergency Coordinator	Steve Abeyta	Assessment and on-site notification; continuing monitoring; mitigation of release source	Main Office	(505) 860 -3801
Management	Terry Lattin	Notification of Emergency Dispatch of potential off-site impact; mitigation of release source	Main Office	(505) 860 -2885
Office Staff	Marcella Marquez	Support to all above	Main Office	(505) 632 -1782

SECTION XI: OPERATIONS SHUTDOWN

Operation Shutdown: Critical operations, including equipment that must be shut off and persons designated to complete these actions are identified below. Personnel should don the appropriate PPE to protect themselves from a H2S exposure, implement shut-down procedures, and continue to monitor the situation through periodic physical inspection of affected equipment and processes during the emergency, until the emergency is resolved or the situation too unstable for safe inspection. Shutdown criteria should be predetermined for life safety and loss control purposes, as well as ensuring complete evacuations in a timely manner.

The Operations Shutdown procedures to be followed by those employees who have been assigned to care for essential building operations include:

PERSONNEL ASSIGNED TO OPERATIONS RESPONSIBILITIES

Operation	Required Shutdown	Name	Job Position	Work Area
Trucking	Trucks parked and no longer running	Terry Rhoades	Field Operations Manager	Main Office
Land Farm	Heavy Equipment parked and secured	Clyde Tafoya	Landfarm Operations Manager	Land Farm
Administration	Main Office	Marcella Marquez	HSE Administrator	Main Office

On-site supervisors will be responsible for monitoring for leaks, pressure build-up, and gas generation and ruptured valves (19.15.36.13.N.11).

Persons involved in the Operations Shutdown listed above shall be notified by management of this responsibility in advance, identified in the H2S CP, and will be appropriately trained for the particular situation.

SECTION XII: TRAINING AND COMMUNICATIONS

Each occupant should know that evacuation is necessary and what his/her role is in carrying out the plan. Employees should also know what is expected of them during an emergency to assure their safety. Training on the H2S CP content is required annually. A copy of this H2S CP will be provided to the San Juan County Office of Emergency Management and to the NMOCD, along with notifications of any changes or updates to the plan. Further, on an annual basis, as required by the Emergency Planning and Community Right-To-Know Act of 1986, as amended, a Tier II Report will be prepared and filed with both the State Emergency Management Commission as well as the San Juan County Local Emergency Planning Committee, delineating the potential hazards at the facility.

Training on the H2S Contingency Plan will include hydrogen sulfide hazards, detection, PPE and the contingency procedures. Employees will receive a thorough briefing and demonstration of the proper use of required PPE. The Primary Emergency Coordinator (PEC) will provide H2S CP training to managers, supervisors and employees. The PEC will hold periodic on-site or classroom drills and exercises simulating a release. The PEC will hold annual training and practice drills for the public, residents of the area and public officials. All training will be implemented and documented in writing by the PEC. The Environmental Health and Safety Department can assist with training, drills and demonstrations (19.15.11.9.B.d)

Communications: The main building and tank battery facility will use two way radios as its primary method of communications. The secondary communications will be an intercom systems with loud speakers located at the tank battery and shop working areas.

** 911 – As per Don Cooper, San Juan County Emergency Manager - San Juan County is set up on a "single dispatch & reverse 911 notification" system – all necessary emergency and HazMat responders, etc. will be dispatched from the 911 office & rapid notification is sent out to local residents and other occupants in the event of an emergency.*

In the event of a H2S release resulting in levels of 10 ppm or greater requiring the activation of the Hydrogen Sulfide Contingency plan, the division will be notified by the PEC as soon as possible or within a 4 hour time frame. The PEC will submit a full report of the incident on form C-141 within 15 days following the release.

SECTION XIII: PLAN AMENDMENTS (19.15.11.9)

In accordance with Subsection D of 19.15.11.9 NMAC, this plan shall be submitted to and approved by the division before commencement of operations at the IEI Blanco Facility.

The H2S CP will be amended and/or reviewed as follows:

- On an annual basis;
- The emergency coordinator may amend the plan any time a subject addressed in the plan materially changes or as necessary to protect public safety.

The H2S CP will be amended within 5 working days whenever:

- The SWMF permit is revised or modified;
- In the event of emergency failure;
- Change of design, construction, operation or maintenance of the facility which increases the potential for fires, explosions, or a release;
- The list of emergency coordinators or their contact information changes; or
- The list of emergency equipment changes.

SECTION XIV: CHARACTERISTICS OF HYDROGEN SULFIDE (H2S) and SULFUR DIOXIDE (SO2) (19.15.11.9.B.2.b NMAC)

A. Hydrogen Sulfide (H_2S): H2S is a by-product of decaying organic matter and microbial activity. Workers in oil and gas operations, mining, sewage treatment facilities, landfills, laboratories and public utilities are the most commonly exposed groups.

Because of the dangers of working with H2S, IEI is required by law to follow certain safety standards and procedures, such as monitoring the air in certain work areas and providing engineering controls. But, and most importantly, you must know how to protect yourself from H2S. If you recognize the hazard and follow specific procedures, you can work around H2S safely.

Hydrogen sulfide is a colorless, toxic and flammable gas, heavier than air, and has the odor of rotten eggs. Hydrogen sulfide presents a significant health hazard by paralyzing the respiratory system resulting in serious injury or death.

Hydrogen Sulfide Properties and Characteristics	
CAS No.	7783-06-4
Molecular Formula	H_2S
Molecular Weight	34.082 g/mol
Ceiling Concentration (not to be exceeded)	20 ppm (OSHA)
Ceiling Peak Concentration (10 minute period once within an 8 hour day)	50 ppm (OSHA)
Threshold Limit Value (TLV)	15 ppm (ACGIH)
Time Weighted Average (TWA) (during an 8 hour day)	10 ppm (NIOSH)
Short Term Exposure Level (STEL)	15 ppm (ACGIH)
Immediately Dangerous to Life or Health (IDLH)	100 ppm (NIOSH)
Specific Gravity Relative to Air (Air=1.0)	1.189
Boiling Point	-76.5F
Freezing Point	-121.8F
Vapor Pressure	396 psia
Auto ignition Temperature	518F
Lower Flammability Limit	4.3%
Upper Flammability Limit	46.0%
Stability	Stable
pH in Water	3
Corrosivity	Highly corrosive; reacts with metals and plastics, causes damage to human tissues

Physical Effects of Hydrogen Sulfide		
Concentration in ppm	Concentration in %	Physical Effects
1	0.00010	Can be smelled (rotten egg odor)
10	0.0010	Obvious and unpleasant odor; Permissible Exposure Level; safe for 8 hour exposure
20	0.0020	Acceptable Ceiling Concentration
50	0.0050	Loss of sense of smell in 15 minutes
100	0.0100	**Immediately dangerous to life and health(IDLH)** loss of sense of smell in 3-15 minutes; stinging in eyes & throat; altered breathing
200	0.0200	Kills sense of smell rapidly; stinging in eyes and throat
500	0.0500	Dizziness; **unconscious after short exposure;** Need artificial respiration
700	0.0700	**Unconscious quickly; death will result if not rescued promptly**
1000	0.1000	**Instant unconsciousness; followed by death within minutes**

B. Sulfur Dioxide (SO_2): Sulfur dioxide is produced as a by-product of combustion of H_2S. It is a colorless, transparent, and non-flammable gas, with a pungent odor associated with burning sulfur. Sulfur dioxide is heavier than air, but will be picked up by a breeze and carried downwind at elevated temperatures. Sulfur dioxide can be extremely irritating to the eyes and mucous membranes of the upper respiratory tract.

Sulfur Dioxide Properties & Characteristics	
CAS No.	7446-09-5
Molecular Formula	SO_2
Molecular Weight	64.07 g/mol
Permissible Exposure Limit (PEL)	5 ppm(OSHA)
Time Weighted Average (TWA)	2 ppm(ACGIH)
Short Term Exposure Level (STEL)	5 ppm(ACGIH)
Immediately Dangerous to Life and Health (IDLH)	100 ppm
Specific Gravity Relative to Air (Air = 1.0)	2.26
Boiling Point	14°F
Freezing Point	-103.9°F
Vapor Pressure	49.1 psia
Auto ignition Temperature	Non-flammable
Lower Flammability Limit	Non-flammable
Upper Flammability Limit	Non-flammable
Stability	Stable
Corrosivity	Could form an acid in aqueous solutions

Physical Effects of Sulfur Dioxide	
Concentration	**Effect**
1 ppm	Pungent odor, may cause respiratory changes
2 ppm	Permissible exposure limit; Safe for an 8 hour exposure
3-5 ppm	Pungent odor; normally a person can detect sulfur dioxide in this range
5 ppm	Short Term Exposure Limit (STEL); safe for 15 minutes of exposure
12 ppm	Throat irritation, coughing, chest constriction, eyes tear and burn
100 ppm	**Immediately Dangerous To Life & Health (IDLH)**
150 ppm	So irritating that it can only be endured for a few minutes
500 ppm	Causes a sense of suffocation, even with first breath
1,000 ppm	**Death may result unless rescued promptly**

Air Monitoring can be accomplished in several ways:

- Personal monitors
- Portable Monitors
- Fixed, full time area monitoring equipment.

Ventilation of potential H2S areas can be done with natural ventilation or mechanical ventilation.

Personal Protective Equipment appropriate to H2S areas include:

- Escape units
- Air-line or supplied-air units
- SCBA

In the event of an exposure to H2S:

1. **Emergency procedures for respiratory exposure:**

- **Without endangering yourself**, immediately remove victim to fresh air and safe area.
- Administer CPR and rescue breathing.
- Get medical support by calling 911.
- Notify Supervisor and Primary Emergency Coordinator

2. **Emergency procedures for eye exposure:**

- Flush eyes with clear running water for 15 minutes
- Force your eyelids open if necessary
- Seek medical attention

3. **Emergency procedures for skin exposure:**

- Remove contaminated clothing
- Rinse skin thoroughly
- Wash or dispose of contaminated clothing

The RKI Multi-Channel Gas Detection/Alarm System and Four Channel Wall Mount Controllers (or similar) will be used on the facility to detect and notify personnel of the presence of toxic gases.

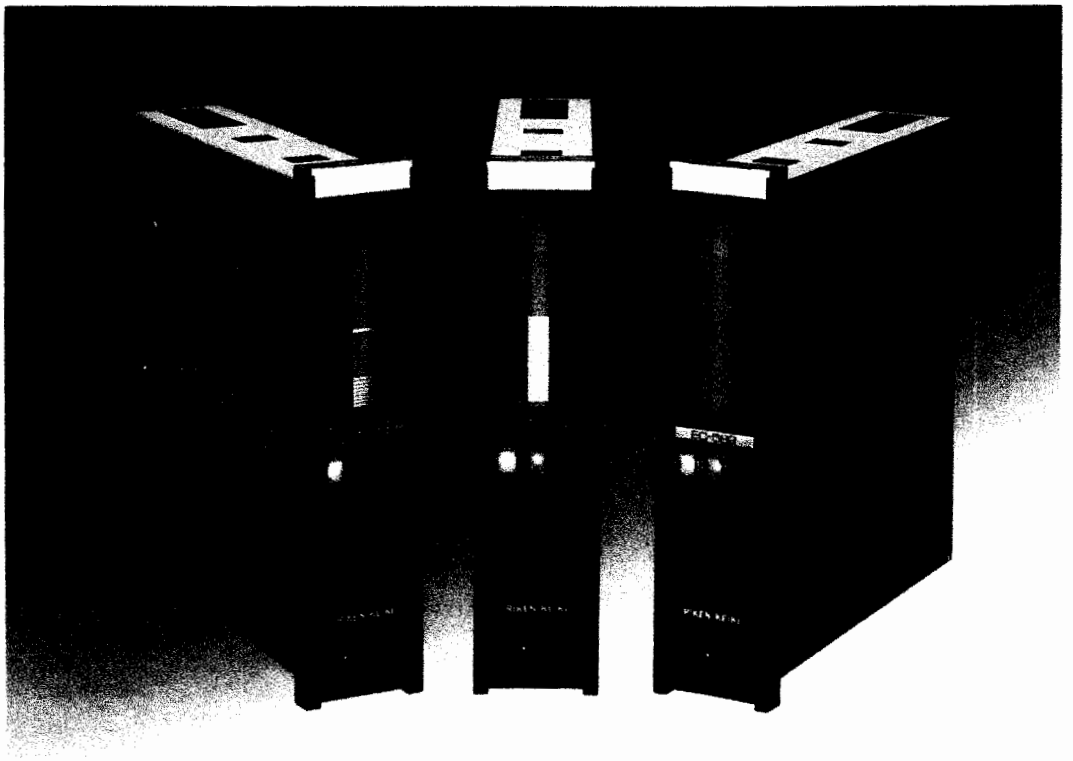
FOR CONTINUOUS MONITORING

MULTI-CHANNEL GAS DETECTION AND ALARM SYSTEM

RM-580 Series

COMBUSTIBLE/OXYGEN/TOXIC GAS

- Three color display (green/orange/red) indicates hazardous levels
- Combustible gases can be detected in automatically changing ranges (from PPM to % LEL) with one unit (NC-581W)!



■ Applications

- Petro-refinery, petrochemical plants
- Chemical plants
- Semi-conductor manufacturing plants
- Engineering public work field
- Power station, gas work
- Iron and steel works

■ Features

- Available to connect to various gas sensors
- Easy to read three color (green/orange/red) LED bar-graph display (52 segments)
- Combustible gases detectable in wide range (from PPM to %LEL) with one display unit (NC-581W)
- Automatically changes from ppm range to %LEL range (NC-581W)
- Two alarm levels
- Peak hold function
- Highly integrated compact design with plug-in type unit
- Zero suppression function
- Alarm contact interruption function (Maintenance mode)
- Alarm test mode
- Auto zero function
- Ability to indicate a flow failure alarm
- Output signal (4~20mADC) is provided

RKI INSTRUMENTS, INC.

Specifications/Terminal output

SPECIFICATIONS FOR INDICATOR/ALARM UNIT

TYPE	GP-581	NC-581	NC-581W	GH-581	SP-581	EC-582	TX-582	OX-582	OX-581	Buzzer Unit TAN-580
Detection principle	Catalytic Combustion	New ceramic		Semiconductor	Catalytic/ semiconductor combination	Electrochemical	Membrane covered electrode	Galvanic cell		———
Gas detected	Combustible gases			Combustible/toxic gases		Toxic gases	Toxic gases for NH_3 and (C_2H_5)	Oxygen		———
Detection range	0~100%LEL	0~several thousand ppm	Dual ranges CH_4: 0~5000ppm 0~100%LEL $i\text{-}C_4H_{10}$: 0~2000ppm 0~100%LEL	0~several hundred or thousand ppm		In ppm range 0~150ppm	0~75ppm or 150ppm	0~5, 10, 25 or 50%		———
Indication	Brilliant, multicolor LED bargraph (52 segments), Gas concentration indication (0~F.S.) (50 segments)*6									———
Initial clear*1	Provided (approx. 25 sec.)									———
Zero suppression	Built-in (To suppress zero fluctuation caused by change of atmosphere									———
Alarm accuracy	Within ±25% for indication value*2					Within ±30% for alarm setting value		Within 1.0vol% for indication value		———
Operating temperature & humidity	0~40°C (0~104°F), 10~90%RH									———
Power supply Single	DC24V ±10%									
Power supply Multi	AC100/110/115V or AC200/220/240W									
Power consumption	10W (DC) 17VA (AC)*5			11W (DC) 18VA (AC)		6W (DC) 10VA (AC)*5		7W (DC) 12VA (AC)*5		2W (DC) 3VA (AC)
Transmission distance	CH_4: Max. 2km (1.24mi) Combustibles: Max. 3km (1.86mi)					Max. 2km (1.24mi) by 2 shielded cable		Max. 2km (1.24mi) by 2 shielded cable	Max. 600m (1980ft) by 2 shielded cable	———
Alarm indication	1st alarm flashing LED (orange), Latched mode 2nd alarm flashing LED (red), Latched mode				Continuous light when reset Non-latched mode					Latched mode*3
Alarm contact	1a or 1b (Both 1st and 2nd alarm) latched mode, Non-latched mode when reset									
Output signal	4~20mA DC	In ppm range: 4~20mADC In %LEL range: 24mADC*8	4~20 mA DC							
Alarm delay circuit	Max. 12.5sec. Adjustable to each 0.5sec.									
Transmission method	Sensor output direct transmission					4~20mA (EC-582)	4~20mA transmission		Sensor output direct transmission	
Trouble alarm	Flashing LED (green), Non-latched (except OX-581) 1a or 1b, non-latched (except OX-581)									1a or 1b Non-Latched mode
Case type	Multicase: Munsell 10YR 4.7/035, Frame: Munsell 5YR 2/1.5									
	570-SR (1 point type), Case: Munsell 10YR 4.7/0.5, Frame, Munsell 5YR 2/1.5									

*1 Initial clear. Time delay to prevent false alarm when powered on.
*2 Alarm accuracy for toxic gas detection is within ±30% of indicated value.
*3 Buzzer (Silenced with reset switch)
*4 Total alarm (gas and trouble).
*5 Add 18VA (AC) in case of multi-unit case.
*6 Color pattern of LED bargraph:
- Below 1st alarm...green; Over 1st alarm...orange; Over 2nd alarm...red
- When only the 1st alarm is set, the color is green below the 1st alarm. The color changes to red, over the 1st alarm.

*7 Model NC-581W: Alarm setting provided are one point only in ppm range and one point only in %LEL range.
*8 In %LEL range, the output signal is a steady 24mA DC. The signal does not change from this level. Please note that it is impossible to see the gas concentration by the output signal in %LEL range.

***Specifications subject to change without notice.**

TERMINAL OUTLINE FOR SINGLE CASE

INDICATOR/ALARM UNIT

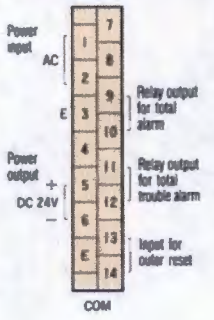
Operation signal	Terminal #		Operation signal
Power input + DC 24V	⑪	①	Relay output for 1st alarm
Power input − DC 24V	⑫	②	Relay output for 1st alarm
Reset signal input	⑬	③	
Alarm output	⑭	④	Detector head
Relay output for trouble alarm	⑮	⑤	Detector head
	⑯	⑥	Detector head
Vacant terminal	⑰	⑦	Relay output for 2nd alarm
Output for trouble signal	⑱	⑧	Relay output for 2nd alarm
Test input	⑲	⑨	+ DC 4~20mA output
Common (for ⑪, ⑭, ⑮, ⑲)	⑳	⑩	− DC 4~20mA output

BUZZER UNIT

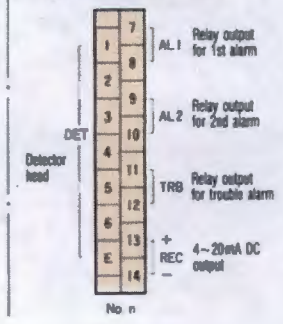
Operation signal	Terminal #		Operation signal
Power input + DC 24V	⑪	①	
Power input − DC 24V	⑫	②	
Reset signal input	⑬	③	Vacant terminal
Alarm input	⑭	④	
Relay output for all total trouble alarm	⑮	⑤	
	⑯	⑥	
Vacant terminal	⑰	⑦	Relay output for all total alarm
Input for trouble signal	⑱	⑧	Relay output for all total alarm
Input for outer reset signal	⑲	⑨	Vacant terminal
Common (for ⑪, ⑭, ⑮, ⑲)	⑳	⑩	Vacant terminal

TERMINAL OUTLINE FOR MULTI-UNIT CASE

• COM terminal
(Buzzer unit)



• No. n terminal
(Indicator/alarm unit)

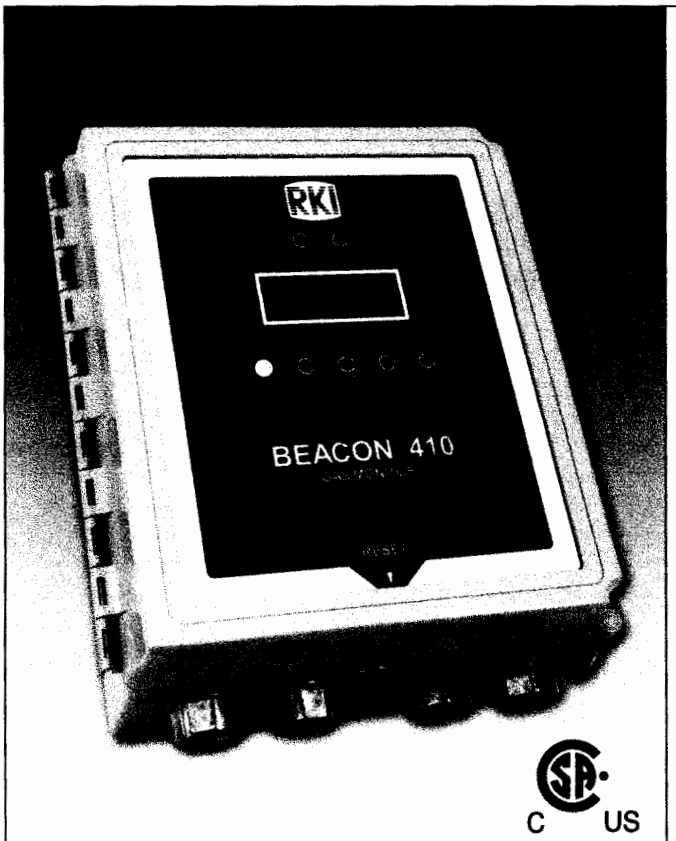


INSTRUMENTS

FOUR CHANNEL WALL MOUNT CONTROLLER

Gas Detection For Life

Beacon™ 410 Model



Features

- **Simultaneously monitor up to 4 channels**
- **Digital display of all 4 channels**
- **LEL/O2/CO2/toxic direct connect sensors**
- **Accepts any 4-20 mA transmitter, 2 or 3 wire**
- **3 programmable alarm levels per channel**
- **Up to 3 configurable alarm relays per channel**
- **Zero follower automatically compensates sensor drift**
- **4-20 mA analog & Modbus digital output standard**
- **115 / 220 VAC or 24 VDC operation**
- **Audible alarm with silence feature**
- **Alarm reset switch**
- **Built in trouble alarm with relay**
- **Weather proof NEMA 4X enclosure**
- **Optional strobe & battery backup available**

Industry Applications

- **Petrochemical plants**
- **Refineries**
- **Water & wastewater treatment plants**
- **Pulp & paper mills**
- **Gas, telephone, & electric utilities**
- **Parking garages**
- **Manufacturing facilities**
- **Steel**
- **Automotive**
- **HVAC**

The Beacon 410 is a highly configurable, microprocessor-based, flexible and easy to use 4 channel gas monitor. It simultaneously displays the gas type, readings, and status for 4 channels of gas detection. It can monitor any combination of direct connect sensors (LEL combustibles, Oxygen, Oxygen, CO2, and toxic gas sensors, and Carbon Dioxide) as well as any 4-20mA transmitters.

Each channel has ***3 fully configurable alarm points***. A built-in silenceable ***audible alarm*** alerts you to alarm conditions. Each channel also has ***2 dedicated fully configurable relays*** and there is a bank of ***common relays*** as well. The common relays can optionally be configured as additional channel relays allowing ***up to 3 alarm relays per channel***.

Each channel provides a ***4-20mA output*** signal. A ***digital Modbus*** interface for remote logging of data via a Modbus network is standard. A Min-Max feature retains ***high & low peak readings*** for review at any time.

Field calibration is made simple by the easy to use ***Calibration Mode***. A fully configurable high visibility ***strobe*** is available as an option. The unit can be powered from ***115/220 VAC***, an external ***24 VDC*** source, or a 24 VDC ***backup battery***. A trickle charging battery backup feature is also available as an option.

All features and functions of the Beacon 410 are controlled by easy to use menus on the ***backlit LCD display***. The form-C (SPDT) relay contacts are rated at 10A, 250V, reducing or eliminating the need for additional slave relays. All features of the Beacon 410 are built into the unit so you never need to purchase or maintain any "add-on" cards or components.

RKI Instruments, Inc. · 33248 Central Ave. Union City, CA 94587 · Phone (800) 754-5165 · (510) 441-5656 · Fax (510) 441-5650

Beacon™ 410 Model

Physical

Dimensions	Height: 12.5" (318 mm) x Width: 11" (279 mm) x Depth: 6.4" (136 mm)
Enclosure	NEMA 4X non-metallic for indoor and outdoor locations
Conduit Connection	3/4" NPT conduit hubs, 4 provided, for sensor, power, & relay wiring
Wiring Termination	Screw type terminal block, 14 gauge max
Power	115 VAC & 220 VAC, or 24 VDC nominal, battery backup option available
Controls	Display PCB Control Switches: • UP/YES push button switch • DOWN/NO push button switch • ESCAPE push button switch • ENTER push button switch • External reset switch • On/Off toggle switch

Environmental

Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-4°F to 158°F (-20°C to 70°C)
Relative Humidity	0 - 95% RH (non-condensing)
Enclosure Rating	NEMA-4X enclosure, chemical and weather resistant

Inputs

Direct Wired Sensors	LEL, Oxygen, Carbon Dioxide, and toxic gas sensors. Remote amp not required for less than 500 feet
4-20 mA Sensors	Accepts any 4-20 mA transmitter (24 VDC, 2 or 3 wire). A wide variety of RKI/Riken sensors are available with 4-20 mA signals. Wiring distances up to 8,000 feet
Sampling Methods	Diffusion and sample draw heads available

Outputs

Relays	Two flexible, programmable Form-C (C, NO, NC) relays per channel, plus five common relays (Fail, Alarm-1, Alarm-2, Alarm-3, Alarm-Any). Common relays may optionally be assigned to function as additional channel alarm relays, providing for up to three alarm relays per channel. 10A contact rating.
4-20 mA	Signal output, 4-20 mA (maximum load impedance 500 ohms), per channel
RS-485	Modbus format RS-485 serial output of all channel data, including gas reading and alarm status.
Display	4 x 20 backlit LCD display
Audible	Built-in audible alarm, 94 dB, mounted on enclosure Coded output: pulsing = gas alarm, steady = fail
Visual	1. Alarm LED's (on Display PCB) • Alarm 1, yellow • Alarm 2, orange • Alarm 3, red • Fail, yellow 2. Green Pilot LED to indicate AC power connected (on Display PCB) 3. An optional 24 VDC NEMA 4X strobe mounted to top of case.
Approvals	CSA Certified to CSA C22.2 No. 1010 and ANSI / ISA S82.01
Warranty	One year materials and workmanship

Specifications subject to change without notice.

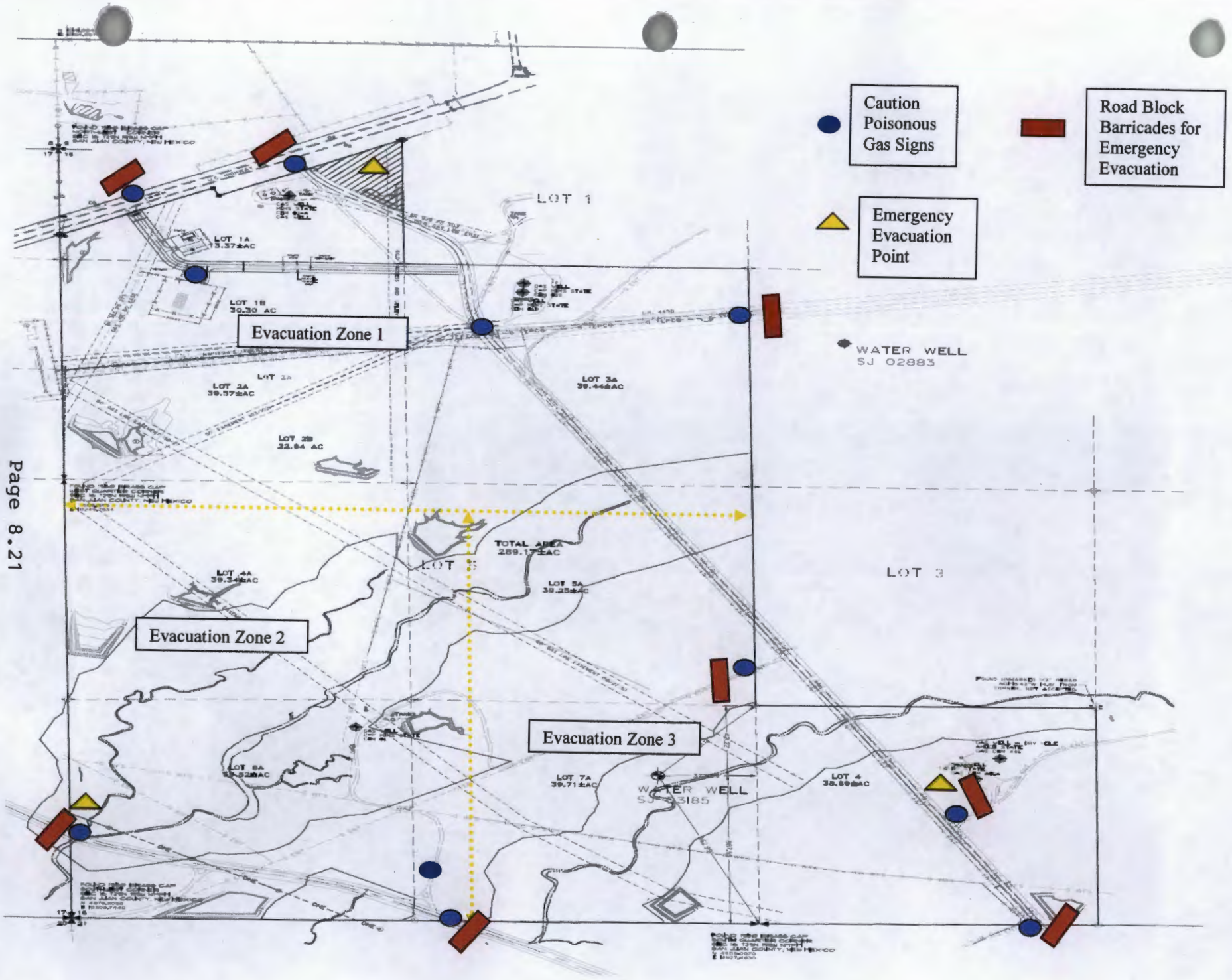
Made in the USA

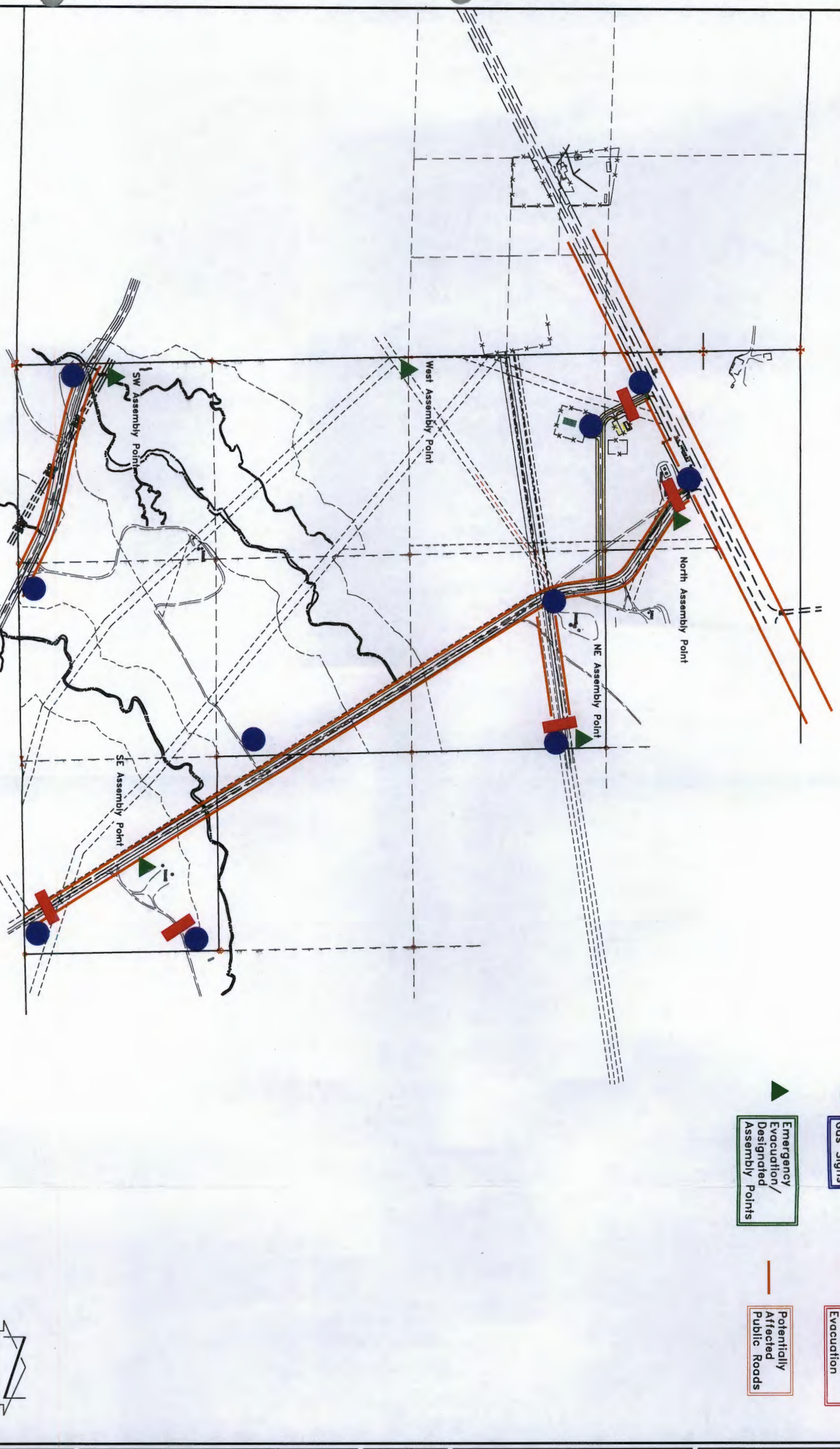
RKI INSTRUMENTS

A9812 UL REGISTERED FIRM ISO 9001

Toll Free: (800) 754-5165 · Phone: (510) 441-5656
Fax: (510) 441-5650 · www.rkiinstruments.com

Authorized Distributor:


Caution Poisonous Gas Signs
Road Block Barricades for Emergency Evacuation
Emergency Evacuation Point
Evacuation Zone 1
Evacuation Zone 2
Evacuation Zone 3
LOT 1
LOT 1A 13.37±AC
LOT 1B 30.30 AC
LOT 2A 39.57±AC
LOT 2B 22.84 AC
LOT 3A 39.44±AC
LOT 3
LOT 4A 39.34±AC
LOT 5A 39.25±AC
LOT 6A
LOT 7A 39.71±AC
LOT 4 38.69±AC
TOTAL AREA 289.17±AC
WATER WELL SJ 02883
WATER WELL SJ 03185



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ADDENDUM "A" EMERGENCY EVACUATION ROUTES
CROWE BLANCO PROPERTIES, LLC

OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

REGISTERED PROFESSIONAL ENGINEER — No. 13654 — NEW MEXICO — RICHARD P. CHENEY

CHENEY·WALTERS·ECHOLS, INC.
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

DATE	REVISION	BY

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CROWE BLANCO PROPERTIES, LLC
CLOSURE AND POST CLOSURE PLAN & ESTIMATE
(19.15.36.8.C.9 & 19.15.36.18 NMAC)

SUBMITTED TO:
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

SUBMITTED BY:
Souder, Miller & Associates
2101 San Juan Blvd.
Farmington, New Mexico 87401

FOR OPERATOR:
Industrial Ecosystems, Inc. (IEI)
#49 CR 3150
Aztec, NM 87410

TABLE OF CONTENTS

1. INTRODUCTION

The purpose of the closure and post closure plan is to establish the minimum requirements and procedures for closure of the facility and/or cell(s) within the facility.

IEI may choose to close specific cells/areas of the facility prior to final cessation of all operations and site closure.

IEI will utilize up to four active cells for "treatment" of *contaminated* soils throughout the life of the facility. During the closure operation the treatment area will be subject to semi-annual Treatment Zone Monitoring (19.15.36.15.D) and Vadose Zone Monitoring (19.15.36.15.E), with annual reports to the Division, as listed in *Table 1: Facility Closure Testing Requirements.*

As soils are remediated, confirmation samples will be taken according to the "Treatment Zone Monitoring" standards (19.15.36.15.F), listed *Table 1: Facility Closure Testing Requirements.* Once soils reach closure performance standards, these "treated/remediated" soils would be graded and left in place. The cells will be re-vegetated in accordance with paragraph 6 of Subsection A of 19.15.36.18 NMAC.

Closure costs listed in this plan are based on the use of a maximum of four active cells, at any given time, for "treatment" of *contaminated* soils. In the event that additional cells are needed for "treatment" of *contaminated* soils, the company's financial assurance would be adjusted accordingly and approval would be obtained from OCD prior to placing *contaminated* soils within the additional cells.

2. GENERAL SURFACE WASTE MANAGEMENT FACILITY CLOSURE (19.15.36.18.A)

The facility consists of the following separate areas:

- Processing Area: Contains liquid processing and separation equipment, including mobile shaker and slurry tanks, centrifuges, and up to twenty-eight steel tanks. The area is a 60,000 square-foot lined enclosure with a 2 ½ foot compacted earthen berm surrounded by six-foot tall chain-link fencing. The area is lined with a 60-mil HDPE liner (or equivalent) and covered with a 12-inch layer of sand protecting the liner, followed by approximately 4 to 5 1/2 feet of topsoil to allow vehicular traffic in the Processing Area (see IEI's facility permit with engineering drawings for specifications).

- Landfarm: Encompasses ±206 acres of the property separated into 10-acre landfarm cells. Four cells will be designated for treatment of *contaminated* soils. The remaining cells will be used for final placement of remediated soils (soils which meet closure performance standards).

IEI will notify the OCD more than 60 days prior to the proposed date for cessation of operations and provide a schedule for closure. Upon receipt, OCD will review the current closure plan for adequacy and may inspect the facility (19.15.36.18.A.1).

If any modifications to the closure plan or additional requirements are found to be necessary, OCD will notify IEI within 60 days of the closure notification from IEI (19.15.36.18.A.2).

If OCD has not notified IEI of any modifications or requirements within 60 days, IEI will proceed with the closure activities listed in the current closure plan. The Division director may, with good cause, send IEI written notice that they are extending the time for their response for an additional period not to exceed 60 days (19.15.36.18.A.3).

IEI is entitled to a hearing concerning any modifications or additional requirements requested by OCD. IEI must file an application for a hearing within 10 days after receipt of the written notice from OCD of the proposed modifications or additional requirements (19.15.36.18.A.4).

Closure shall proceed in accordance with the approved closure plan and schedule including modifications or additional requirements imposed by OCD. Throughout closure operations, IEI will maintain the facility to protect fresh water, public health and safety, and the environment (19.15.36.18.A.5). The facility's Storm Water Pollution Prevention Plan and Contingency Plans will remain active until closure and post closure activities have been completed.

Post-closure activities will include re-vegetation of the site, as discussed in Section 7 & 8 of this plan. Post-closure will be considered at an end when all closure activities have been completed, closure standards have been achieved, and vegetative cover is equal to 70 percent of the native perennial cover excluding noxious weeds through two successive growing seasons (19.15.36.18.A.6).

3. RELEASE OF FINANCIAL ASSURANCE (19.15.36.18.B)

Upon approval of closure and post-closure completions, OCD will release financial assurance as described in 19.15.36.18.B NMAC.

4. CLOSURE INITIATED BY THE DIVISION. FORFEITURE OF FINANCIAL ASSURANCE (19.15.36.18.C)

In the event facility closure is initiated by the division, the provisions of 19.15.36.18.C will be implemented.

5. PROCESSING AREA CLOSURE (19.15.36.18.D.1, 19.15.36.18.D.4.F & 19.15.36.18.E)

Closure of the processing area includes removal of all equipment, soil and liner. Expected costs are summarized in *Table 2: Processing Area Closure*. Initially, the contents and equipment located inside of the 60'X 72' building, including the centrifuge, will be removed and the building will be disassembled for reuse/recycling and/or will be demolished. Disassembling and/or demolition will include removal of the steel building, the concrete floor and foundation(s). Any waste associated with the disassembling and/or demolition of the building will be disposed of at the local landfill and/or appropriate recycling facility. (19.15.36.18.D.4.f) The fence surrounding the processing area will be removed for reuse/recycling or disposed of at the local landfill.

Tanks within the processing area will be emptied and cleaned disposing of any remaining BS&W/washout water at a division-approved surface waste management facility (SWMF). Removal and disposal of all fluids in the tanks within the Processing Area is estimated to be a maximum of 12,800 barrels. The tanks will be reused/recycled or scrapped and removed from the facility within 90 days of removal from the processing area (19.15.36.18.D.1.a). Removal of tanks for reuse will require an escort and permits for transporting on highways, for an estimated four days total. All piping and pumps will be disassembled and removed for reuse/recycling.

Two five point surface samples will be taken from the bermed processing area surface before removal of the soils covering the liner. The soils covering the liner will systematically be removed by machine and monitored by PID for hydrocarbon contamination, visually monitored for other contaminants and sampled for laboratory analysis for BTEX, TPH & chlorides at least once during removal. If the laboratory results comply with 19.15.36 NMAC landfarm standards no additional actions will be taken. If the results indicate the soil has been impacted, the soil will be placed into a biopile for remediation. It will take approximately four days to remove the soil covering the liner, and to cut, haul, and dispose of the liner.

The liner beneath the processing area will be exposed, cut into manageable pieces and removed for disposal to a division-approved SWMF. One homogenized sampled consisting of 3-four point composite samples will be taken from the vadose zone once the liner is removed. The soils will be sampled for TPH, BTEX, chlorides, and the constituents listed in Subsections A and B of 20.6.2.3103. If the laboratory results comply with OCD standards and are equal to or below PQL or background soil concentrations the processing area will be backfilled with clean native soil from within the facility. If the material previously covering the liner has laboratory results meeting 19.15.36 NMAC landfarm standards it will be preferentially used for backfill. If the results indicate the soil has been impacted, the soil will be placed into a biopile for remediation or transported off-site to a division-approved SWMF for disposal. The processing area berms will be removed and used to re-contour the processing area. The processing area will then be re-vegetated in accordance with 19.15.36.18.A.6 (19.15.36.18.D.4.c).

All sample results will be submitted to the Division for closure approval before backfilling may begin.

6. LANDFARM CLOSURE (19.15.36.18.D.4)

Landfarm Closure (*Table 3: Closure Costs*) will begin upon acceptance of the last load of contaminated soil. From this time, it is anticipated that it will take 6 months for the four active "treatment" cells to remediate to closure standards (19.15.36 NMAC landfarm standards).. During this time, each of the biopiles will be turned at least every 30 days, for a total of 50 days of equipment usage and up to seven separate mobilization events and up to seven additions of soil enhancers such as manure and fertilizer. Turning impacted soils in biopiles with the possible addition of bioremediation enhancing materials will continue in the four "active" treatment cells until impacted soils are remediated to the standards provided in 19.15.36.15.F (19.15.36.18.D.4.a). One semi-annual monitoring event is anticipated to occur within this time. Monitoring is to expected consist of two days of field work by an environmental field technician to collect at least one treatment zone composite sample, consisting of four discreet samples from the "treatment" zone. Each sample will be analyzed for the constituents listed in *Table 1: Facility Closure Testing Requirements*.

Once biopiles reach treatment zone closure standards, final closure activities will commence. Closure sampling for the landfarm is anticipated to take approximately 3 days of field work by an environmental field technician to collect one sample composited from four discreet locations in each active "treatment" cell, (1 samples for analysis for each of the four cells) and one vadose zone sample composited from four discrete locations in the vadose zone within each of the active "treatment" cells (1 sample for analysis for each of the four cells). Each sample will be analyzed for the constituents listed in *Table 1: Facility Closure Testing Requirements*. Once closure samples meet the standards listed below in Table 1, the sample results will be submitted to the OCD for approval.

Once biopile soils have reached the treatment zone closure standards and are approved by the Division, they will be graded to cover the cell to a depth of two feet or less and re-vegetated in accordance with 19.15.36.18.A.6. (19.15.36.18.D.4.b)

Soils which cannot or have not been remediated to the standards as provided in 19.15.36.15.F will be removed from the site and taken to a Division-approved SWMF. The perimeter fence will remain in place until re-vegetation is 70 percent of the native perennial vegetative cover.

Until the Division has approved final closure of the site, IEI will submit reports of annual vadose and treatment zone sampling results (19.15.36.18.D.4.g).

7. Facility Post Closure (19.15.36.18.F)

Once IEI has achieved clean closure of all treatment and process areas, as approved by the Division, post-closure care shall continue for a minimum of three years. During that time, IEI or a hired contractor shall inspect and maintain required re-vegetation on a monthly basis.

If there has been a release to the vadose zone or to ground water, then IEI or hired contractor shall comply with the applicable remediation requirements of 19.15.30 and 19.15.29 NMAC (*Table 4: Post-Closure*).

8. Other Closure Procedures & Re-Vegetation (19.15.36.18.G)

Final closure activities will include removal of a 1000 gallon elevated diesel tank set in a 15 foot diameter stock tank for containment, Other closure activities consist of the dismantling/removal of facility and cell berms, buildings perimeter & processing area fencing, roads (only roads which were specifically created for operational purposes will be removed-existing county/access roads will remain intact) and all other equipment associated with the SWMF. (19.15.36.18.D.4.e & 19.15.36.18.D.4.f).

Cells that have not previously been re-vegetated will be seeded with a mix free of noxious weeds consisting of at least three native plant species, including at least one grass. Fencing will remain around the facility until vegetation has stabilized the soil. Re-vegetation will be considered complete when the vegetative cover equals 70 percent of the native perennial vegetative cover (un-impacted by grazing, fire or other intrusion damaging to native vegetation) (19.15.36.18.A.6).

In the event Crowe Blanco Properties, LLC or designated responsible entity contemplates using the land for purposes inconsistent with re-vegetation, and only after receiving division approval, an alternative surface treatment will be implemented, providing that the alternative treatment effectively prevents erosion. If the division approves an alternative to re-vegetation, the division shall not release the portion of the operator's financial assurance reserved for post-closure until the landowner has obtained necessary regulatory approvals and begun implementation of such alternative use.

9. Closure Costs (19.15.36.11.B)

Closure costs are attached in Tables 2 and 3. All costs are based on current (2010/2011) contractor rates including Souder, Miller and Associates, Three Rivers Trucking, Inc., Envirotech, Inc., and Hall Environmental Analysis Laboratory.

TABLE 1: FACILITY CLOSURE TESTING REQUIREMENTS

Purpose	How many/ frequency	Analyses	Standard(s) (mg/Kg)
Treatment Zone Monitoring 19.15.36.15.D NMAC	1 composite (4 discrete) **Semi-Annually**	TPH (EPA Method 8015M or 418.1) Chlorides (EPA Method 300.1)	Not to exceed 2500 Not to exceed 500 (groundwater >50 ft below surface)
Vadose Zone Monitoring 19.15.36.15.E NMAC	4 random/treatment zone **Semi-annually** 3-4 ft below treatment zone	TPH (EPA Method 418.1) Total BTEX (EPA Method 8021B or 8260B) Chlorides (EPA Method 300.1)	Higher of PQL or background
	4 random **5 yr**	Constituents listed in Subsections A and B of 20.6.2.103 NMAC as determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division.	
Treatment Zone Closure 19.15.36.15.F NMAC	1 composite (4 discrete) surface	Benzene (EPA Method 8021B or 8260B) Total BTEX (EPA Method 8021B or 8260B) GRO/DRO (by EPA 8015M) TPH (by EPA 418.1) Chlorides (EPA Method 300.1) Concentration of constituents listed in Subsections A and B of 20.6.2.103 NMAC as determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division	0.2 50 500 2500 500 (groundwater >50 ft below surface) Higher of PQL or background
Processing Area Closure 19.15.36.18.D.1 19.15.36.18.D.4.F 19.15.36.18.E NMAC	2 (five point) surface soils above liner	BTEX (EPA Method 8021B or 8260B) TPH (by EPA 418.1) Chlorides (EPA Method 300.1)	500 2500 500 (groundwater >50 ft below surface)
	1 homogenized sample (consisting of 3-four point composite samples) vadose zone beneath the liner	BTEX (EPA Method 8021B or 8260B) TPH (by EPA 418.1) Chlorides (EPA Method 300.1) Constituents listed in Subsections A and B of 20.6.2.103 NMAC as determined by EPA SW-846 methods 6010B or 6020 or other methods approved by the division	500 2500 500 (groundwater >50 ft below surface) Higher of PQL or background
Landfarm Closure 19.15.36.18.D(4) NMAC	Must meet Treatment Zone Closure & Vadose Zone requirements (as listed above); soils that cannot be remediated must be removed to division-approved SWMF & the area filled in with native soil.		

Table 2 - Processing Area Closure

Task	Cost/unit		# of units	Cost
Labor and Equipment costs for:				
Remove/dispose of liquids in tanks	$ 4.00	bbl	12,800	$ 51,200.00
Disconnect tanks, remove manways	$ 195.00	tank	28	$ 5,460.00
Clean tanks	$ 125.00	tank	28	$ 3,500.00
Haul tanks	$ 535.00	tank	28	$ 14,980.00
Remove equipment from centrifuge bldg.	$2,200	day	1	$ 2,200.00
Dismantle Bldg, Cut floor and footings	$1,800	day	1	$ 1,800.00
Remove Bldg, Floor and Footings from the Facility	$2,850	day	2	$5,700
Haul demolition materials and dispose	$625	load	15	$9,375
Pull underground lines	$ 200.00	hour	15	$ 3,000.00
Remove soil covering liner w/machinery	$ 1,400.00	day	2	$ 2,800.00
Monitor and Sample Soil Removal	$920.00	day	2	$ 1,840.00
Cut liner into pieces, haul & dispose	$ 2,200.00	day	2	$ 4,400.00

Labor costs for soil sampling:				
Load/unload/pack samples	$ 156.00	each	1	$ 156.00
Mobe/Demobe	$ 78.00	each	2	$ 156.00
Surface soil sample	$ 117.00	sample	4	$ 468.00
Vadose zone sample	$ 234.00	sample	1	$ 234.00
Vehicle + Mileage	$ 109.00	each	1	$ 109.00
Laboratory costs:				
Surface & Vadose: BTEX (8021B)	$ 50.00	sample	4	$ 200.00
Surface & Vadose: DRO/GRO (8015B)	$ 60.00	sample	4	$ 240.00
Surface & Vadose: TPH (418.1)	$ 60.00	sample	4	$ 240.00
Surface & Vadose: Chlorides (300.0)	$ 25.00	sample	4	$ 100.00
Surface & Vadose: Constituents listed in Subsections A and B of 20.6.2.3103 NMAC	$950	sample	4	$ 3,800.00
TOTAL PROCESSING AREA CLOSURE COSTS				**$ 111,958.00**

Table 3 - Landfarm Closure

Task	Cost/unit		# of units	# of events	Cost
6 months of Remediation					
Equipment costs	$ 1,081.00	day	50	1	$ 54,050.00
Equipment transport	$ 420.00	event	7	1	$ 2,940.00
Addition of enhancing materials	$ 1,000.00	event	7	1	$ 7,000.00
Landfarm Monitoring (semi-annual)					
Labor costs for soil sampling					
Load/unload/pack samples	$ 156.00	event	1	2	$ 312.00
Mobe	$ 78.00	trip	1	2	$ 156.00
Demobe	$ 78.00	trip	1	2	$ 156.00
Treatment zone soil sample	$ 180.00	sample	1	4	$ 720.00
Vadose zone sample	$ 360.00	sample	1	4	$ 1,440.00
Vehicle + Mileage	$ 109.00	day	1	2	$ 218.00
Laboratory costs					
Treatment zone & Vadose zone: TPH (8015 B or 418.1)	$ 60.00	sample	8	1	$ 480.00
Treatment zone & Vadose zone: BTEX (8021B)	$ 50.00	sample	8	1	$ 400.00
Treatment zone & Vadose zone: Chlorides (300.0)	$ 25.00	sample	8	1	$ 200.00
Treatment zone: Metals (6010)	$ 140.00	sample	8	1	$ 1,120.00
				SUBTOTAL	**$ 69,192.00**
Fuel Tank Removal					
Trucking Fuel Tank	$ 100.00	hour	2	1	$ 200.00
Trucking Stock Tank Containment	$ 100.00	hour	2	1	$ 200.00
Labor costs for soil sampling					
Mobe	$ 78.00	trip	1	1	$ 78.00
Demobe	$ 78.00	trip	1	1	$ 78.00
Sample for BTEX, GRO-DRO	$ 180.00	sample	1	1	$ 180.00
Laboratory cost: BTEX (8021B)	$ 50.00	sample	1	1	$ 50.00
Laboratory cost: GRO/DRO (8015B)	$ 60.00	sample	1	1	$ 60.00
				SUBTOTAL	**$ 846.00**
Closure Procedures					
Labor costs for Active Cell Closure					
Load/unload/pack samples	$ 156.00	day	1	6	$ 936.00
Mobe	$ 78.00	day	1	6	$ 468.00
Demobe	$ 78.00	day	1	6	$ 468.00
Treatment zone sample	$ 180.00	sample	4	1	$ 720.00
Vadose zone sample	$ 360.00	sample	4	1	$ 1,440.00
Vehicle + Mileage	$ 109.00	day	1	6	$ 654.00
Laboratory costs (1 treatment zone samples/ each of 4 active cells + 1 vadose sample/ active cell)					
BTEX (8021B)	$ 50.00	sample	8	1	$ 400.00
DRO/GRO (8015B)	$ 60.00	sample	8	1	$ 480.00
TPH (418.1)	$ 60.00	sample	8	1	$ 480.00
Chlorides (300.0)	$ 25.00	sample	8	1	$ 200.00
Constituents listed in Subsections A and B of 20.6.2.3013 NMAC	$ 950.00	sample	8	1	$ 7,600.00
			SUBTOTAL		**$ 13,846.00**
Grading landfarm	$ 300.00	hour	136	1	$ 40,800.00
Fence removal, cleanup- labor costs	$ 155.00	hour	50	1	$ 7,750.00
Disposal of wire, fencing, etc	$ 588.00	load	4	1	$ 2,352.00
Seeding	$ 200.00	acre	225	1	$ 45,000.00
			SUBTOTAL		**$ 95,902.00**
				TOTAL LANDFARM CLOSURE COSTS	**$ 179,786.00**

Table 4 - Post-Closure

Task	Cost/unit		# of units	Cost
Post Closure Costs				
Monitoring Facility Montly Inpsection	$ 400.00	Month	36	$ 14,400.00
Erosion Control	$ 1,000.00	incident	6	$ 6,000.00
Re-seeding	$ 1,000.00	incident	6	$ 6,000.00
			SUBTOTAL	**$ 26,400.00**

CONTINGENCY PLAN
(19.15.36.8.C.10 & 19.15.36.13.N NMAC)

INTRODUCTION

The facility functions as a New Mexico Oil Conservation Division (NMOCD) permitted Surface Waste Management Facility (SWMF) specializing in remediating Non-Hazardous, RCRA Exempt Oilfield Waste.

The Contingency Plan describes the actions to be taken by the SWMF personnel in the event of a spill, fire or other response to incident. It includes information necessary to address response situations efficiently and in such a manner as to prevent or minimize hazards to human health and the environment. due to fire, explosion or any unplanned sudden or non-sudden release of contaminants or oilfield waste constituents that could threaten fresh water, public health, safety or the environment.

The Contingency Plan is to be expeditiously carried out whenever there is an emergency that could threaten human health or the environment. Implementing the procedures contained in this plan should effectively mitigate such threats.

The Emergency Coordinator, or the Alternate Emergency Coordinator(s), are responsible for implementing the Contingency Plan during an emergency response event; however, employees must also be familiar with the procedures in this plan to ensure that it is properly implemented.

Copies of the plan are maintained at the SWMF office and will be provided to NMOCD and to local law enforcement and emergency response departments for use during an emergency.

TABLE OF CONTENTS

SECTION I: PURPOSE AND OBJECTIVES

This Contingency Plan outlines the emergency procedures that will be employed to minimize hazards to human health and the environment from fire, explosions, or any unplanned sudden or non-sudden release of contaminants or oilfield waste to air, soil, surface water or ground water. The plan will demonstrate that facility-specific emergency procedures have been developed and will be implemented immediately whenever an emergency situation occurs at the facility.

SECTION II: GENERAL FACILITY INFORMATION

a. Crowe Blanco Properties, LLC 1015 W. 54th Street, Kansas City, MO 64112
b. Operator: Industrial Ecosystems, Inc. 49 CR 3150 Aztec, NM 87410 (505) 632-1782
c. Physical Address: Highway 64 near mile marker 75, San Juan County, S-16, T-29N, R-09W, Latitude 36° 43' 22" N Longitude 107° 47' 19" W
d. Mailing address: #49 CR 3150, Aztec, NM 87410
e. Permit #:
f. Key Contacts:

Title	Name	Telephone
Primary Emergency Coordinator	Alberta Pablo	(505) 860-4068
Alternate Emergency Coordinator	Clyde Tafoya	(505) 860 -7360
Alternate Emergency Coordinator	Steve Abeyta	(505) 860 -3801
Management	Terry Lattin	(505) 860 -2885
Office Staff	Marcella Marquez	(505) 632 -1782

g. Facility Phone # (505) 632-1782
h. Facility Fax # (505) 632-1876 or (505) 334-1003

SECTION III: DESCRIPTION OF BUSINESS ACTIVITY

The facility is a NMOCD permitted SWMF (landfarm) which provides environmental services to local oilfield companies. The facility accepts Non-Hazardous, RCRA exempt waste(s) generated from oil and gas exploration and production. The primary intent of the facility is to landfarm / remediate oilfield waste for reuse and recycling.

SECTION IV: WASTE DESCRIPTIONS

Only Non-Hazardous, RCRA exempt wastes are accepted at the facility. These materials are generated from oil and gas exploration and production (E&P) operations and are usually the by-product of "down-hole" operations.

Waste is delivered in both solid and liquid forms. Solid waste is placed into biopiles and liquid waste is managed in tanks at the "tank battery" area. The "tank battery" area of the facility is provided with a secondary containment system.

The following provides information and descriptions of the most common waste streams handled at the facility and their associated characteristics and/or constituents:

Waste Characterization

Characterization requirements for individual shipments of waste are specified on a waste stream basis. A waste stream is defined as waste material generated from a single site and a single process or an activity that is similar in material, physical form, and constituents. Exempt Oilfield Waste accepted at the facility is initially categorized into three groups that are related to the physical form of the waste.

1. Hydrocarbon Stained Soils and Gravels – Production of hydrocarbon stained soils or gravels includes spillage, line failure, leaking vessels or valves, and the reclamation of production pits. Waste predominantly contaminated by petroleum hydrocarbons.
2. Tank Bottoms – Production of tank bottoms includes tank cleaning operations -cleaning the accumulation of hydrocarbon material and other substances that settle naturally below oil in tanks and receptacles that are used in oils' handling and storing, and which accumulation contains in excess of 2% of BS&W. For lease production and lease storage tanks, tank bottoms shall be limited to that volume of the tank in which it is contained that lies below the bottom of the pipeline outlet to the tank.
3. Drill Cuttings-Production of drill cuttings of rock and other materials removed from the borehole while drilling petroleum wells.

On-Site Generated Wastes

As a result of operating the facility, waste material is generated. A review of the several of the most common wastes generated at the facility is provided below:

- Wastes from Tanks-approximately once every two years, it is necessary to remove the tank bottom sediment consisting of free water, residual oilfield wastes, and other materials such as soot and grit. A vacuum truck is used for this purpose.
- Contaminated Gloves, Rags, Paper, Absorbents, etc.-Contaminated gloves, rags, paper, absorbent and other miscellaneous material such as personal protective equipment is generated by the facility as a result of the management of the oilfield wastes and daily operations.

SECTION V: EMERGENCY COORDINATORS

The Emergency Coordinator (HSE Specialist) and Alternate Emergency Coordinator(s) are trained to respond in the event of a response situation. The Emergency Coordinator and/or the Alternate Emergency Coordinators have the authority to call for outside assistance to respond to the emergency and are authorized to commit the facility's resources, equipment and personnel, as necessary, to carry out this Contingency Plan.

At least one Emergency Coordinator, or an Alternate Emergency Coordinator, is at the facility or on-call and capable of reaching the facility in time to effectively respond to potential response situations. Each Emergency Coordinator and Alternate Emergency Coordinator is familiar with this Contingency Plan, the operations and activities at the facility, the location and characteristics of wastes handled, the location of facility records, the facility layout, and the location and use of response and spill control equipment.

Table A-1 presents the list of Titles, Names, Location, Address, and the office, mobile and home telephone numbers of the Emergency Response Coordinators. The list will be updated, as necessary. The division's environmental bureau will be promptly notified when any changes are made to the Emergency Coordinator(s) and/or their contact information.

TABLE A-1
EMERGENCY RESPONSE COORDINATORS

Title	Name	Location	Address	Telephone
Primary Emergency Coordinator	Alberta Pablo	Main Office	2825 Self Lane Farmington, NM 87402	(505) 632-1782 (O) (505) 860-4068 (C) (505) 326-5387 (H)
Alternate Emergency Coordinator	Clyde Tafoya	Land Farm	#14 CR 5221 Bloomfield, NM 87413	(505) 632-1782 (O) (505) 860-7360 (C) (505) 632-2679 (H)
Alternate Emergency Coordinator	Steve Abeyta	Main Office	#28 CR 4906 Bloomfield, NM 87413	(505) 632-1782 (O) (505) 860-3801 (C) (505) 632-8880 (H)

The duties of the Emergency Coordinator(s) are to assess the situation and take steps necessary to protect human health and the environment. The Emergency Coordinator(s) are responsible for the coordination of containment and recovery operations following a response situation.

Responsibilities of the Emergency Coordinator(s) include:

- On-site and/or on-call availability;
- Familiarity with this Contingency Plan, the facility layout and operations, waste locations and characteristics, and location and format of records;
- Authority to commit necessary resources;
- Assess the possible or potential hazards to human health or the environment;
- Take the steps necessary to protect human health and the environment;
- Coordinate the response, containment and recovery operations;
- Activate the internal alarms and communication systems;
- Identification and characterization of the release;
- Prevention of spread or recurrence of the emergency;
- Monitor leaks, pressure buildup, gas generation, and rupture of pipes, valves, and other equipment;
- Notify outside emergency responders and state and local agencies;
- Based on the severity of the incident, supervise the evacuation plan, if law enforcement or emergency responders order an evacuation;
- Act as liaison between emergency and state agencies and facility personnel;
- Cleanup provisions;
- Maintenance of emergency equipment;
- Agency notification and reporting; and (Refer to Section XI and XIX)
- Incident record keeping.

SECTION VI: IMPLEMENTATION

Any person discovering a situation which may require implementation of the Contingency Plan (e.g., fires, spills, etc.) shall immediately warn others working nearby and immediately notify the Emergency Response Coordinator(s).

The Contingency Plan will be implemented whenever there is an imminent or actual incident such as a fire, explosion or release of contaminants which could threaten human health or the environment. The Emergency Coordinator and alternate(s) must be prepared to respond in a technically-effective and time-efficient manner. The decision to implement the Plan will ultimately rest with the Emergency Coordinator.

SECTION VII: EVACUATION PLAN

In the event of a major emergency, the on-site Emergency Coordinator may sound the alarm or air horn and/or verbally announce over the loudspeaker and/or CB radios to signal all non-essential personnel, visitors, and contract personnel to evacuate the area and assemble at the appropriate emergency evacuation/designated assembly point(s). Everyone shall remain at the emergency evacuation/designated assembly point(s) and await instructions from Emergency Coordinator.

The facility exits are clearly marked and employees are trained and aware of the potential escape routes and emergency evacuation/designated assembly points. Emergency Evacuation Route maps will be posted in locations throughout the facility showing available exits from the area and the direction to the emergency evacuation/designated assembly point(s) (Refer to Addendum A).

In the event that the Emergency Coordinator determines the need to evacuate the facility, local law enforcement and emergency response teams will be informed. Everyone shall remain at the emergency evacuation/designated assembly point(s) and await instructions from law enforcement and emergency response personnel or the on-site Emergency Coordinator.

If the Emergency Coordinator believes that a threat to human health or the environment outside the facility exists, s/he will notify the appropriate agencies. The Emergency Coordinator will be available to help the appropriate officials decide if evacuation of the neighboring properties is necessary. The evacuation proceedings of neighboring properties will be initiated by law enforcement or emergency response personnel.

SECTION VIII: IDENTIFICATION OF WASTE(S)

Whenever there is a release, fire or explosion, the Emergency Coordinator must identify the character, source, amount and extent of any released materials and obtain other pertinent information related to the event as expeditiously as possible.

Oilfield Waste

Much of this information can be readily obtained from the facility operating logs (i.e. Material Entry Records and Tank Battery logs). These logs provide information on the type and volume of material brought into the facility and in the tanks located at the "tank battery" area. The logs are maintained at the facility and are updated each operating day.

Chemicals/Fuels/Oils used in the Workplace

The company has a Hazard Communication program in place.

Material Safety Data Sheets
MSDS are obtained for all chemicals/fuels/oils, etc. used on the facility. Material Safety Data Sheets (MSDS's) are written documents which are provided by manufacturers for each hazardous chemical or product that they produce, sell or distribute. Chemical manufacturers and suppliers are mandated by law to provide the MSDS's along with their product to the customer or user. The MSDS contains valuable information about the characteristics, safety and health hazards, protective measures and emergency response procedures for the hazardous chemical or product. Material Safety Data Sheets (MSDS) shall be maintained and kept readily accessible for any new chemicals (except consumer product chemicals) introduced into the workplace. The MSDS should be read and understood by personnel handling the material. The MSDS binder will be kept in the office. *An active inventory list of hazardous chemicals used/stored in the workplace will be compiled and updated as new chemicals are received. These lists will be referenced on the appropriate MSDS sheet and maintained for each job site.*

Container Labeling
Original Containers - Must be labeled to include the chemical or product name and the proper hazard warning to enable the user to immediately understand the material's primary health and/or physical hazard(s). Employers or employees shall not remove or deface labels on containers of hazardous chemicals. Labels will be legible and in English, however, for non-English speaking employees, the information will be relayed to them in their own language.

Secondary Containers – Must be labeled with the chemical name and hazard warning. A recommended practice is to also include the common name of the material such as paint thinner, window cleaner, etc.

Labeling Requirements:

- When two or more labels are required, they will be displayed next to each other;
- Labels will be on a background of contrasting color;
- Labels may not be obscured by markings or attachments;
- Labels must be durable, weather resistant, and able to withstand exposure for 30 days without deterioration or discoloration;
- Labels may be printed on or affixed to a tag when package surfaces are such that labels cannot be affixed.

SECTION IX: ASSESSMENT

The Emergency Coordinator will assess the potential for a release or fire to get beyond the control of facility personnel. The assessment takes into account the magnitude of the event, the proximity to facility boundaries and surrounding neighbors, the potential for fires to spread or contaminant releases to reach groundwater or surface water and the progress being made by facility personnel in controlling the release or fire. The assessment also considers both direct and indirect effects of the release, fire or explosion (e.g., the effects of any toxic, irritating or asphyxiating gases that may be generated, or the effects of any contaminated runoff).

After identifying the nature of the event and the type of contaminants involved the Emergency Coordinator will determine the appropriate response. If necessary, the Emergency Coordinator reviews the North American Emergency Response Guidebook (ERG) for information on specific hazards. This publication lists materials by chemical name as well as by USDOT UN numbers and details the procedures that should be used to respond to an incident involving specific materials.

SECTION X: NOTIFICATION

The facility office is equipped with a variety of fixed and mobile communications equipment (telephone, fax, cell phones, two-way radios, and computers) to ensure continuous communication with management, responders, authorities, and other interested parties.

If the event is classified as a *minor emergency* it will be handled by facility personnel.

If the event is classified as a *major emergency*, the Emergency Coordinator will:

- Implements the Contingency Plan;
- Initiate the appropriate alarm(s) and notify personnel on site of the situation through the facility two-way/CB radios, intercom and telephone systems;
- Supervises the response following the procedures in the Contingency Plan;
- Notify NMOCD and the National Emergency Response Center (if necessary); and
- Notify appropriate emergency, state and local agencies as detailed below:

Police Department.....if there is imminent danger to human health.
Fire Department.....if there is an uncontrollable fire or spill or potential for toxic fumes.
Hospital.....if there are injuries or missing personnel.
NMOCD.....if the Contingency Plan is implemented.
Cleanup Contractor.....if assistance with cleanup is needed after a release.

Table A-2 lists the emergency agencies and their telephone numbers that may be called in the event of a *major* emergency requiring outside assistance.

TABLE A-2

Outside Notification of Major Emergencies

Department or Agency	Phone Number	Initial Criteria for Contact
Emergency Notification Phone Numbers		
Internal: Emergency Response Coordinators: Alberta Pablo, HSE Specialist Clyde Tafoya, Facility Operations Mgr. Steve Abeyta, Operations Supervisor	 (505) 860-4068 (505) 860-7360 (505) 860-3801	Implementation of the Contingency Plan
External: National Response Center 24 hour Emergency Number	(800) 424-8802	Release of a reportable quantity of contaminants to the environment.
Chemtrec	(800) 262-8200	Hazardous materials & dispatch of HAZMAT response units.
State Patrol	(505) 334-6622 or (505) 325-7547	Notify if there is an imminent danger to human health.
NMOCD-District Office (Aztec) NMOCD-Bureau Chief	(505) 334-6178 (505) 476-3440	Notify if any spills or releases. Notify if spill/release detrimental to water.
Local Law Enforcement Non-Emergency Dispatch	911 (505) 334-6622	Notify if there is an imminent danger to human health.
Blanco Fire Department	911 (505) 632-8135	Notify if there is a fire, uncontrolled spill, or other imminent danger.
Emergency Dispatch San Juan Regional Medical Center	911 (505) 609-2000	Notify if there are any injuries.

SECTION XI: CONTROL & RESPONSE ACTIONS

Control and Response actions to be taken in specific situations are described in this Section. Incidents such as a fire, explosion or release of contaminants that could threaten human health or the environment are expeditiously reported to the Emergency Coordinator.

Spill (19.15.36.13.K)
In the event of a spill, the facility will comply with spill reporting and corrective action provisions of 19.15.29 NMAC or 19.15.30 NMAC as follows:

For any release (greater than five (5) barrels OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC) that occurs on site, that does not enter drainage:

1. Identify source of release
2. Shut off source
3. Control release (i.e. use of following)
    a. Berms
    b. Catchment basins
    c. Absorbent materials
    d. Dams
4. Make necessary IEI internal notifications:
    a. Terry Lattin, General Manager
    b. Clyde Tafoya, Facility Manager
    c. Steve Abeyta, Operations Manager
5. Notify NMOCD (as required by 19.15.29 NMAC and defined therein):
    a. If release is a minor release, *5 – 25 barrels*, written notification (Form C-141) is required within 15 days to the division district office (see page 4 of this Appendix)
    b. If release is a major release, *greater than 25 barrels (OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC),*
        i. immediate verbal notification is required to division district office
        ii. immediate verbal notification is required to the division's environmental bureau chief
        iii. written notification (Form C-141) is required within 15 days to the division district office (see page 4 of this Appendix)
6. Begin remediation as required by 19.15.30 NMAC:
    a. The vadose zone (*unsaturated earth material below the land surface and above ground water, or in between bodies of ground water*) shall be abated so that water contaminants will not, with reasonable probability, contaminate ground water or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolation or other transport mechanisms, or as the water table elevation fluctuates.
    b. If groundwater is determined to be impacted, an abatement plan must be submitted to NMOCD with details of how the standards of 20.6.2.3103 will be met (unless technical infeasibility is proven or an exemption granted)
7. Submit abatement plan proposals and reports as required by NMOCD.

For any release (greater than five (5) barrels *OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC)* that occurs on site, that enters a drainage within CBP Facility boundary:

Follow steps 1-5 above.

6. Notify U.S. Environmental Protection Agency (EPA) / National Response Center (see page 5 of this Appendix)
7. Begin remediation as required by 19.15.30 NMAC:
    a. The vadose zone (*unsaturated earth material below the land surface and above ground water, or in between bodies of ground water*) shall be abated so that water contaminants will not, with reasonable probability, contaminate ground water or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolation or other transport mechanisms, or as the water table elevation fluctuates.
    b. If groundwater is determined to be impacted, an abatement plan must be submitted to NMOCD with details of how the standards of 20.6.2.3103 will be met (unless technical infeasibility is proven or an exemption granted)
8. Submit abatement plan proposals and reports as required by NMOCD.

For any release (greater than five (5) barrels *OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC*) that occurs on site, that enters a drainage outside of the CBP Facility boundary:

1. Identify source of release
2. Shut off source
3. Make necessary IEI internal notifications:
    a. Terry Lattin, General Manager:
    b. Steve Abeyta, Operations Manager:
    c. Clyde Tafoya, Facility Manager:
4. Control release (i.e. use of following)
    a. Berms
    b. Absorbent materials
    c. Catchment basins
    d. Dams
5. Notify State Police
    a. Provide description of release
    b. Potential closure of Largo Road
6. Notify NMOCD (as required by 19.15.29 NMAC) of any release that may with reasonable probability be detrimental to water or exceed the standards of Subsections A and B or C or 19.15.30.9 NMAC:
    a. immediate verbal notification is required to division district office
    b. immediate verbal notification is required to the division's environmental bureau chief
    c. written notification (Form C-141) is required within 15 days to the division district office and to the division's environmental bureau chief (see page 4 of this Appendix)
7. Notify EPA / National Response Center (for phone numbers, see page 5 of this Appendix)
8. Begin remediation as required by 19.15.30 NMAC:
    a. The vadose zone (*unsaturated earth material below the land surface and above ground water, or in between bodies of ground water*) shall be abated so that water contaminants will not, with reasonable probability, contaminate ground water or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolation or other transport mechanisms, or as the water table elevation fluctuates.
    b. If groundwater is determined to be impacted, an abatement plan must be submitted to NMOCD with details of how the standards of 20.6.2.3103 will be met (unless technical infeasibility is proven or an exemption granted)
9. Submit abatement plan proposals and reports as required by NMOCD and EPA.

Releases (19.15.29 NMAC)

In the event of a release of Hydrogen Sulfide Gas (H2S), the facility will comply with the Hydrogen Sulfide Contingency Plan (Binder Section 19.15.36.8.C.8) as follows:

In the event of a H2S release (19.15.11.9):

1. The alarm system(s) will activate. The H2S sensors will be located at each gate of the tank battery and on the exterior wall of the centrifuge building. An additional H2S sensor will be located on the main entrance road to the land farm facility across from the main office. The alarm has an audio alert at 85 decibels the alarm alerts building occupants and land farm occupants of the need to evacuate to the designated meeting site.
2. In the event of a H2S release notification to the Emergency Coordinator with pertinent information of the release location (Tank #) Emergency contact telephone numbers are listed in Section IX and on Table A1-page 8.12 of this plan.
3. County Roads 4440 and 4450 and all gated well access roads will be road blocked to prevent entry onto the facility.
4. In the event that the Emergency Coordinator determines the need to evacuate the facility, s/he will call 911. ** 911 – As per Don Cooper, San Juan County Emergency Manager - San Juan County is set up on a "single dispatch system" – all necessary emergency and HazMat responders, etc. will be dispatched from the 911 office.* (Refer to Table A1-page 8.12).
5. Everyone shall remain at the designated assembly point(s) and await instructions from law enforcement and emergency response personnel or the on-site Emergency Coordinator.
6. If the Emergency Coordinator believes that a threat to human health or the environment outside the facility exists, s/he will notify the appropriate agencies. The Emergency Coordinator will be available to help the appropriate officials decide if evacuation of the neighboring properties is necessary. The evacuation proceedings of neighboring properties will be initiated by law enforcement or emergency response personnel.

There are numerous natural gas transportation pipelines which pass through the property which are owned/operated by companies other than IEI. In the event that one of these gas lines becomes compromised, employee(s) will turn off any machinery and equipment, immediately leave the area and notify the Emergency Coordinator. The Emergency Coordinator will initiate measures so as to protect human health and the environment by contacting 911 and notifying the pipeline company.

There are no other potential life threatening gases associated with our processes at the facility.

Fires

In the event of a fire, the worker(s) discovering it will immediately notify the Emergency Coordinator who will assess the characteristics of the fire and promptly initiate a plan to stop the source of fire. The Emergency Coordinator will initiate measures so as to protect human health and the environment.

Small Fire (Minor Emergency)
A small fire would be a fire:

- Which can be immediately extinguished and brought under control;
- Which will not cause undue threat to the personal safety of personnel; and
- Which does not require the assistance of outside emergency response organizations.

Emergency response to this type of fire (minor) should be as follows:

- Put on protective equipment including the appropriate respiratory protection equipment (when required) following the instructions of the ERG;
- Utilize fire extinguisher(s) to put the fire out before it spreads;
- Utilize heavy equipment to isolate the fire from biopiles;
- Utilize heavy equipment to cover the fire with soils;
- Utilize water from the freshwater tank to extinguish the fire.

It should be noted that facility personnel should only respond to small fires; that is, those fires which can immediately be extinguished.

At the conclusion of the fire suppression efforts, the Emergency Coordinator visually inspects the area to assess whether the on-site response actions were successful.

Major Fire (Major Emergency)
A major emergency fire would be a fire:

- Which cannot be immediately extinguished or brought under control;
- Which has the potential to become uncontrollable;
- Which may cause the release of toxic fumes;
- Which may spread and ignite waste materials;
- Where imminent danger exists that an explosion may occur;
- Which an explosion has occurred;
- Which may spread off-site or cause personal injury;

Under the direction of the Emergency Coordinator, who will identify and assess the situation, emergency response to this type of fire (major) should be as follows:

- Put on protective equipment including the appropriate respiratory protection equipment (when required) following the instructions of the ERG;
- Immediately shut down all equipment and machinery;
- Determine if evacuation of the facility is warranted;
- Activate the internal facility alarm and communication systems to notify facility personnel and visitors to evacuate;
- Secure the area to prevent unauthorized entry;
- Promptly notify the fire department;
- Notify NMOCD, and if necessary, the National Response Center,
- Notifies appropriate emergency, state and local agencies deemed necessary, such as law enforcement and emergency response departments.

*Upon review of the fire, police and fire officials may initiate evacuation proceedings of the neighboring properties.

The Emergency Coordinator reporting a major fire emergency should be prepared to give his name, position, company name, address, telephone number, time and date. He should also describe the type of incident, extent of injuries, material, source and, if possible, an estimate of the amount, extent of any contamination, the containment status, and specify any equipment needed. More detailed reporting requirements are contained in Section XIX.

Explosions

In the event of an explosion, the worker(s) discovering it will immediately notify the Emergency Coordinator who will assess the characteristics of the explosion and promptly initiate a plan to stop the source of explosion. The Emergency Coordinator will initiate measures so as to protect human health and the environment.

Under the direction of the Emergency Coordinator, who will identify and assess the situation, emergency response to explosions should be as follows:

- Put on protective equipment including the appropriate respiratory protection equipment (when required) following the instructions of the ERG;
- Immediately shut down all equipment and machinery;
- Determine if evacuation of the facility is warranted;
- Activate the internal facility alarm and communication systems to notify facility personnel and visitors to evacuate;
- Secure the area to prevent unauthorized entry;
- Promptly notify the fire department;
- Notify NMOCD, and if necessary the National Response Center;
- Notifies appropriate emergency, state and local agencies deemed necessary, such as law enforcement and emergency response departments.

If the explosion occurs where liquids are stored and a spill occurs, procedures for spill containment will commence.

The Emergency Coordinator reporting an explosion should be prepared to give his name, position, company name, address, telephone number, time and date. He should also describe the type of incident, extent of injuries, material, source and, if possible, an estimate of the amount, extent of any contamination, the containment status, and specify any equipment needed. More detailed reporting requirements are contained in Section XIX.

*If the facility stops operation in response to a major emergency, the Emergency Coordinator will monitor for leaks, pressure buildup, gas generation, ruptures in valves, pipe, or other equipment, as appropriate.

SECTION XII: PREVENTION OF RECURRENCE OR SPREAD (CONTAINMENT)

Quick response to a spill, release, fire or explosion is the primary method by which recurrence or spread can be prevented. Specific actions to prevent the recurrence or spread of spills, releases, fires or explosions include determining the source or cause of the incident; ceasing processes and operations, turning off feed lines, auxiliary fuel lines and power supply to the affected area; cleaning up debris from the situations and maintaining good housekeeping; containing and collecting release waste; removing and isolating affected containers; ensuring that a fire is completely extinguished; and decontaminating the affected area/equipment.

Above ground tanks shall have an impermeable secondary containment system (liners & berms), which will contain a volume of at least 1/3 greater than the total volume of the largest tank or all interconnected tanks, unless such above ground tanks contain fresh water. If a leak was due to a release from a primary tank system into the secondary containment system, the source of the leak will be repaired before returning the system to service. If the source of the leak is from a component not in secondary containment, facility personnel will provide secondary containment for that component before it is returned to service unless it is above ground and can be readily inspected.

Incidents will be investigated to determine the cause(s) of the incident and necessary actions/corrections that need to be implemented to prevent similar incidents.

*If the facility stops operation in response to a major emergency, the Emergency Coordinator will monitor for leaks, pressure buildup, gas generation, ruptures in valves, pipe, or other equipment, as appropriate.

At least twice a year, facility personnel will have a practice drill on an emergency situation.

SECTION XIII: CORRECTION AND/OR REMEDIATION

CORRECTION

Incidents can arise from various system processes or equipment failure. Necessary corrective actions, modifications and/or repairs will be determined by the results of the incident investigation.

REMEDIATION

Remediation activities will be implemented according to the source and type of material spilled or released. RCRA Exempt materials released/spilled (tank bottoms, drill cuttings, etc.) would be cleaned up, processed accordingly and placed into biopile(s) for remediation.

SECTION XIV: INCOMPATIBLE WASTE(S)

The Emergency Coordinator will notify facility personnel that waste which may be incompatible with spilled/released materials *a)* shall be disposed of, stored, and/or treated at an alternate temporary location on the facility or *b)* cannot be brought into the facility until h/she has determined that the hazards posed by the response event have been fully remedied.

SECTION XV: EXPECTED CONTAMINANTS & EXPECTED MEDIA CONTAMINATED

The expected contaminants include hydrocarbons, chlorides, diesel fuel, acids and H2S. The expected media contaminated includes soil, ground and surface water(s) and air.

SECTION XVI: INCIDENT INVESTIGATION

The purpose of the investigation procedures are to report, investigate, document, and prevent recurrence of similar emergencies. Comprehensive incident investigation involves gathering evidence and determining what events and conditions led to the incident, as well as analysis of the evidence to determine the root cause of the incident. Once the root causes have been determined, corrective and preventative actions can be developed to prevent recurrence of the incident.

INVESTIGATION PROCEDURES

The Emergency Coordinator(s) will:

- Prepare for the investigation;
- Verify the site is safe and secured;
- Ensure evidence is preserved;
- Gather physical evidence and facts (Sketches, diagrams, maps and photographs);
- Interview witnesses;
- Establish a timeline for the events and conditions immediately before and after the event;
- Determine the critical factors that led to the incident;
- Review and analyze data;
- Determine underlying cause(s) and identify corrective and preventative measures;
- Prepare the final internal report with supporting documentation and preventative measures to prevent a similar incident.

SECTION XVII: POST-EMERGENCY WASTE TREATMENT, STORAGE & DISPOSAL

Immediately following control and response of an emergency, the Emergency Coordinator will work with the Facility Manager(s) and designated personnel to collect and store contaminated/sorbent/fire retardant materials resulting from clean up actions in leak proof containers (i.e. barrels). Once the Emergency Coordinator has determined that all of the materials resulting from clean up actions have been containerized, h/she will notify the Facility Manager(s) that the materials are ready to be transported and disposed of off-site at a properly permitted waste treatment or disposal facility. Contaminated soils containing recovered oilfield waste will be collected and treated on the facility.

SECTION XVIII: EMERGENCY EQUIPMENT

Table A-3 presents the list of emergency equipment, capacity, location(s), and capabilities/description.

Table A-3

EMERGENCY EQUIPMENT

Equipment	Capacity	Location(s)	Capabilities/Description
Communication Equip/Alarms			
Telephone System		Office	Telephones with loudspeaker/paging systems for internal and external communication.
Cell Phones			Key personnel are provided with cell phones.
CB Radio(s)		Main office Tank Battery In Heavy Equipment	Provides the ability for office and landfarm personnel as well as truck drivers to communicate on the facility at all times.
Air Horn		Office Tank Battery	In case of power failure, used to notify facility personnel of an emergency.
H2S Alarms		Office Tank Battery	Alarm activates when H2S levels reach 10 ppm or higher
Fire Extinguisher(s)	10 lb – ABC type 5 lb-ABC type 20 lb ABC type	Office Heavy Equipment Tank Battery	ABC type universal system effective on paper, wood and electrical fires as well as solvents.
Eye Wash Stations		Office & Tank Battery	Provides quick flushing of eyes that have been exposed to chemicals.
Emergency Shower		Tank Battery	Provides quick washing of personnel who have been exposed to injurious chemicals.
First Aid Kits		Office Tank Battery	To provide immediate care until medical aid arrives. Meets OSHA standards.
Body Fluid Spill Kit		Office Tank Battery	Provide protection, containment & disposal of bodily fluids.
OSHA CERTIFIED PPE: Gloves Eye Protection Hearing Protection Head Protection		Office	Cotton, leather, chemical resistant. Safety glasses, goggles, face shields. Ear plugs. Hard Hat.
Sorbent Material		Office Storage Tank Battery	Inert sorbent to handle incidental spills.
Spill Cleanup Equipment (Shovels, Rakes, Squeegees, Brooms)		Storage Tank Battery	Spill cleanup equipment to collect spills and spill residues
Respiratory Protection Equipment (SCBA)		Office	Self Contained Breathing Apparatus (SCBA) which is capable of providing breathable air in an IDLH (Immediate Danger to Life and Health) atmosphere.
Safety Harness		Office	Designed for use when working above ground to offer fall protection.
H2S Monitors 4 Way Gas Monitors		Office-Checked out to personnel for use on landfarm/in field	Monitor the environment to alert of toxic vapors and/or gases, combustibles and oxygen hazards.

SECTION XIX: COORDINATION ARRANGEMENTS

The Primary Emergency Coordinator will schedule a facility walk-through with contractors, state and local law enforcement and emergency response teams to familiarize each agency with:

- The layout and function of the facility;
- The materials handled and associated hazards;
- The locations where facility personnel normally work;
- The entrances, roadways within and possible evacuation routes of the facility; and

At the time of the facility walk-through the Emergency Coordinator(s) will review the Contingency Plan with these agencies to discuss how emergency services can be coordinated. An annual facility walk-through will also be offered to contractors, state and local law enforcement and emergency response teams.

A copy of the Contingency Plan will be sent to the agencies listed below:

- Police Department;
- Emergency Response Department (local fire and rescue); and
- San Juan Regional Hospital.

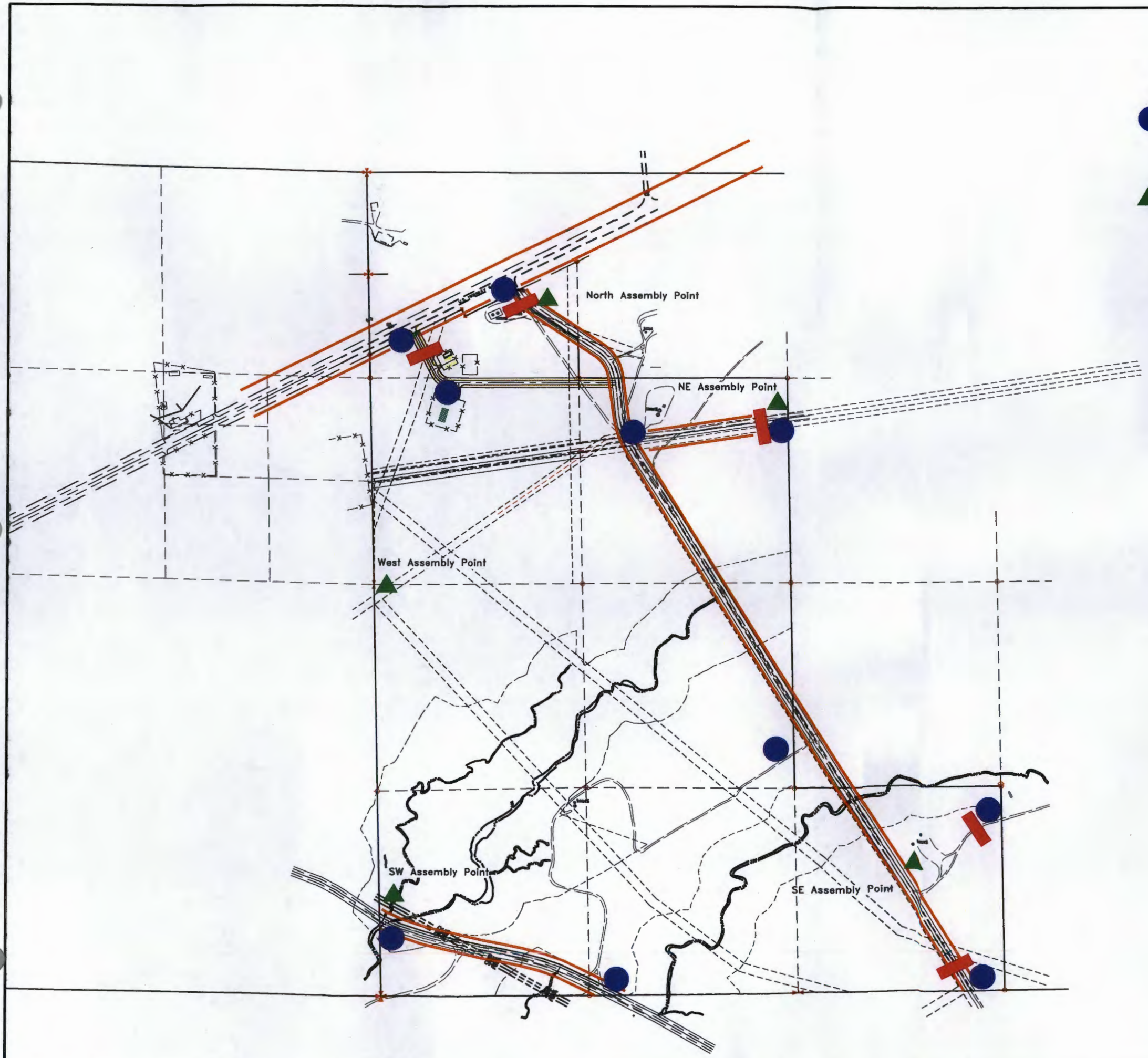
SECTION XX: AVAILABILITY AND REVISION OF THE CONTINGENCY PLAN (19.15.36.13.N)

This Contingency Plan is kept at the facility and is updated when there are changes to the facility that may affect the Plan. Copies of this document and any revisions/modifications are provided to NMOCD and to local authorities/organizations listed in Section XVIII. In addition, this Contingency Plan, and revisions to this Contingency Plan, are made available to the Managers, Supervisors and Emergency Response personnel as well as to employees working at the facility.

The Emergency Coordinator may amend the plan during an emergency, as necessary, to protect fresh water, public health, safety or the environment.

The Contingency Plan will be reviewed and updated, within 5 days, whenever:

- The facility's Permit is revised or modified;
- The list or location of emergency equipment changes;
- The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that increases the potential for fires, explosions, or releases of contaminants, or changes The response necessary in an emergency;
- The Contingency Plan fails when implemented in an emergency; or
- The names, addresses, or phone numbers of Emergency Coordinators change (NMOCD will also be promptly notified anytime there is a change with the Emergency Coordinator and/or their contact information)



REVISION | BY

CHENEY-WALTERS ENGINEERS - S
909 W. APACHE - FARMINGTON, NEW MEXICO

09467\09467set.dwg

ADDENDUM "A" EMERGENCY EVACUATION ROUTES
CROWE BLANCO PROPERTIES, LLC

OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:06/26/2012
DRAWN BY: LH
PROJ. 09467
SCALE:N.T.S.
FILE:09467SET
SHEET
13
OF
17

ADDENDUM (B)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☐ Final Report

Name of Company	Contact
Address	Telephone No.
Facility Name	Facility Type

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Source of Release	Date and Hour of Occurrence	Date and Hour of Dis
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☐ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Describe Area Affected and Cleanup Action Taken.*

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name:	Approved by District Supervisor:	
Title:	Approval Date:	Expiration Date:
E-mail Address:	Conditions of Approval:	Attached ☐
Date: Phone:		

Attach Additional Sheets If Necessary

Release Notification

Run On/Off Water Control
(19.15.36.8.C.11 & 19.15.36.13.M)

The facility will comply with provisions of 19.15.36.13.M to control run-on and run-off water. Run on/off control systems shall prevent flow onto the facility's active portions during the peak discharge from a 25 year storm. Run-off from the facility's active portions shall not be allowed to discharge a pollutant to the waters of the state or United States that violates state water quality standards.

- Run-on waters shall be diverted around the facility by use of v-ditches and earthen berms to prevent flow onto the active portions of the facility.
- Run-off waters shall be diverted into the designated retention ponds/dikes.

Additional best management practices which will be used to control run on/off waters:

- Divert clean stormwater (e.g. roof run-off) away from contaminated areas and into stormwater settling ponds.
- Use liners and berms around disposal areas to capture contaminated stormwater and process wastewater.
- Direct stormwater from the entire site to an on-site settling pond, or series of ponds. It is proposed that this water be reused/recycled with the remediation and/or dust control process when it meets acceptable reuse criteria (does not contain chloride concentrations exceeding 500 mg/kg and does not contain Hydrogen Sulfide in excess of 10 ppm PEL). * Wastewater not meeting the criteria would be transferred to an appropriate permitted injection facility by a transporter possessing an approved C-133 (copy of the State approval form should be kept in the vehicle).
- Protect storm drain inlets from waste runoff.
- Develop a routine yard and equipment maintenance program to considerably reduce the potential for discharge of sediment to the wastewater collection and recycling system.
- Seal above ground fuel and chemical additive storage areas with liners and berms to contain spills and leaks.

DRAINAGE PLAN

INDUSTRIAL ECOSYSTEMS, INC.
BLANCO LAND FARM

The attached maps, table, and graphs represent the Drainage Plan prepared for the above referenced facility.

The calculations were prepared utilizing SCSTR55 methods and also utilizing the point precipitation frequency estimates from the NOAA Atlas 14 for Bloomfield, NM. Calculations were prepared based on a 25 year 1 hour rain storm. The drawings indicate the location of berms, v-ditches, and dykes designed to protect the major waterways. In addition, the 200' setback was maintained from the major waterways.

CHENEY-WALTERS-ECHOLS, INC.
909 W. APACHE
FARMINGTON, NM 87401
(505) 327-3303

Hydrograph Summary Report

·rd.).	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	SCS Runoff	4.03	1	40	4,979	25	----	------	------	Basin 1
2	SCS Runoff	9.09	1	44	13,445	25	----	------	------	Basin 2
3	SCS Runoff	53.79	1	50	99,939	25	----	------	------	Basin 3
4	SCS Runoff	53.15	1	46	86,427	25	----	------	------	Basin 4
5	SCS Runoff	10.23	1	38	11,648	25	----	------	------	Basin 5
6	SCS Runoff	21.30	1	41	27,518	25	----	------	------	Basin 6
7	SCS Runoff	22.50	1	38	25,625	25	----	------	------	Basin 7
8	SCS Runoff	36.99	1	44	54,722	25	----	------	------	Basin 8
9	SCS Runoff	25.10	1	51	48,834	25	----	------	------	Basin 9
10	SCS Runoff	46.85	1	41	60,540	25	----	------	------	Basin 10
11	SCS Runoff	18.21	1	38	20,733	25	----	------	------	Basin 11

ɔj. file: 09467Drn2.GPW	IDF file: blanco.IDF	Run date: 10-16-2009

Hydrograph Summary Report

Hyd No.	Hydrograph Type (origin)	Peak Flow (cfs)	Time Interval (min)	Time to Peak (min)	Volume (cuft)	Return Period (yrs)	Inflow hyd (s)	Maximum Elevation (ft)	Maximum Storage (cuft)	Hydrograph Description
1	SCS Runoff	4.03	1	40	4,979	25	---	---	7,144	Basin 1
2	SCS Runoff	9.09	1	44	13,445	25	---	---	19,109	Basin 2
3	SCS Runoff	53.79	1	50	99,939	25	---	---	104,473	Basin 3
4	SCS Runoff	53.15	1	46	86,427	25	---	---	111,581	Basin 4
5	SCS Runoff	10.23	1	38	11,648	25	---	---	18,003	Basin 5
6	SCS Runoff	21.3	1	41	27,518	25	---	---	29,420	Basin 6
7	SCS Runoff	22.50	1	38	25,625	25	---	---	32,260	Basin 7
8	SCS Runoff	36.99	1	44	54,722	25	---	---	60,017	Basin 8
9	SCS Runoff	25.10	1	51	48,834	25	---	---	50,414	Basin 9
10	SCS Runoff	46.85	1	41	60,540	25	---	---	66,791	Basin 10
11	SCS Runoff	18.21	1	38	20,733	25	---	---	22,671	Basin 11

Project File: HWS 2009 - 09467drn.xls

Hydrograph Plot

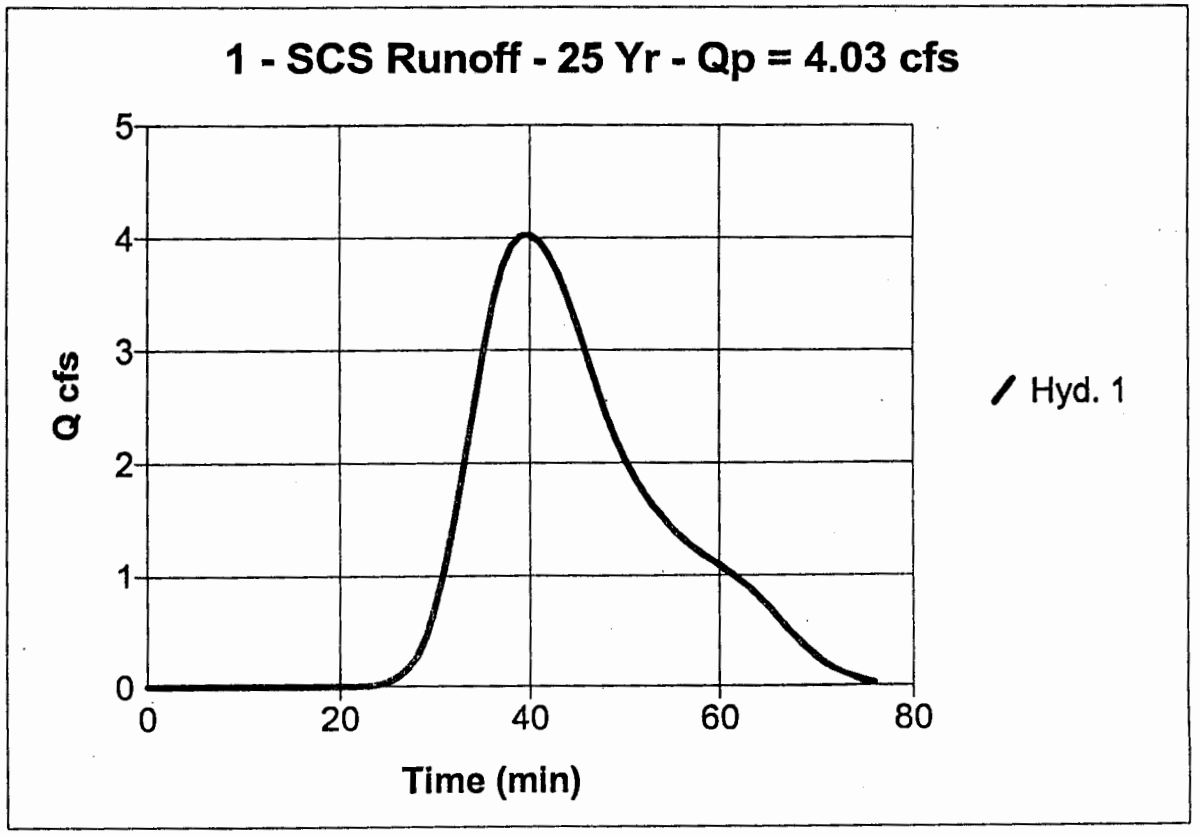
English

Hyd. No. 1

Basin 1

Hydrograph type	= SCS Runoff	Peak discharge	= 4.03 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 2.10 ac	Curve number	= 86
Basin Slope	= 1.0 %	Hydraulic length	= 323 ft
Tc method	= LAG	Time of conc. (Tc)	= 10.5 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 4,979 cuft



Hydrograph Plot

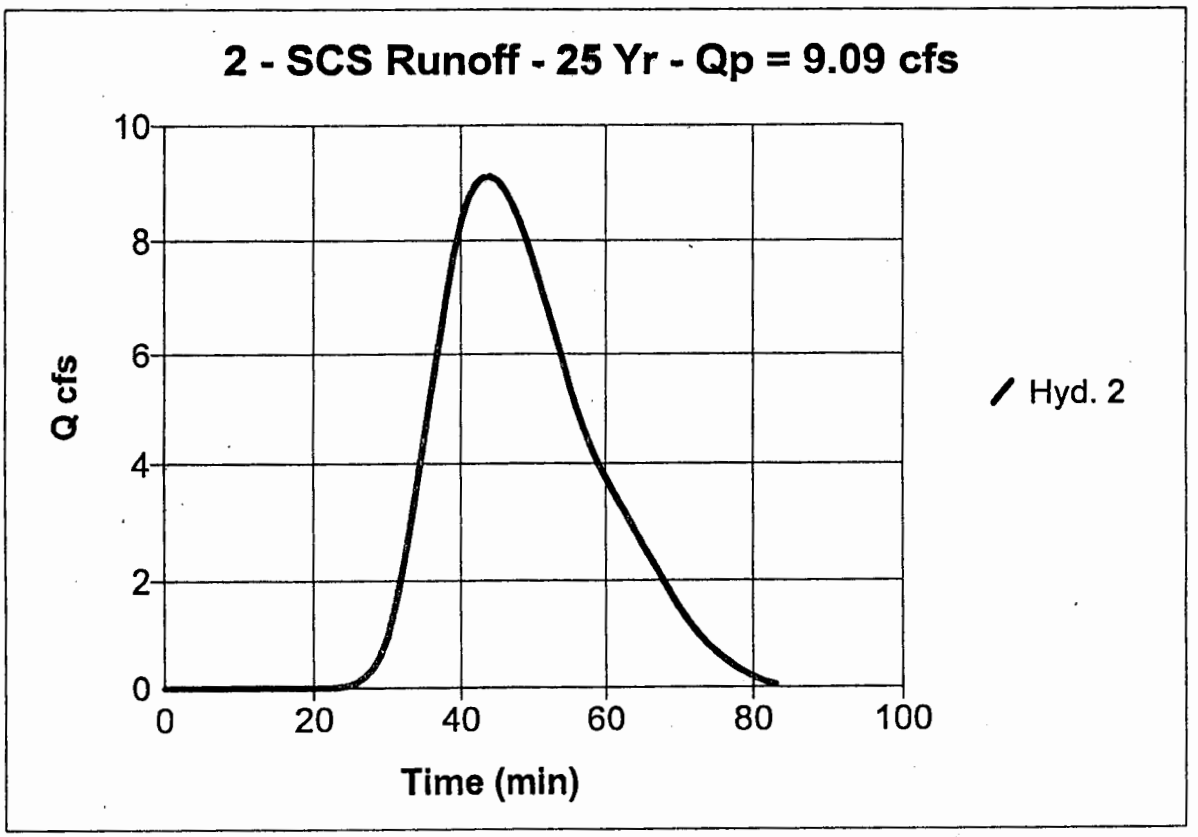
English

Hyd. No. 2

Basin 2

Hydrograph type	= SCS Runoff	Peak discharge	= 9.09 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 5.70 ac	Curve number	= 86
Basin Slope	= 2.8 %	Hydraulic length	= 985 ft
Tc method	= LAG	Time of conc. (Tc)	= 15.3 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 13,445 cuft



Hydrograph Plot

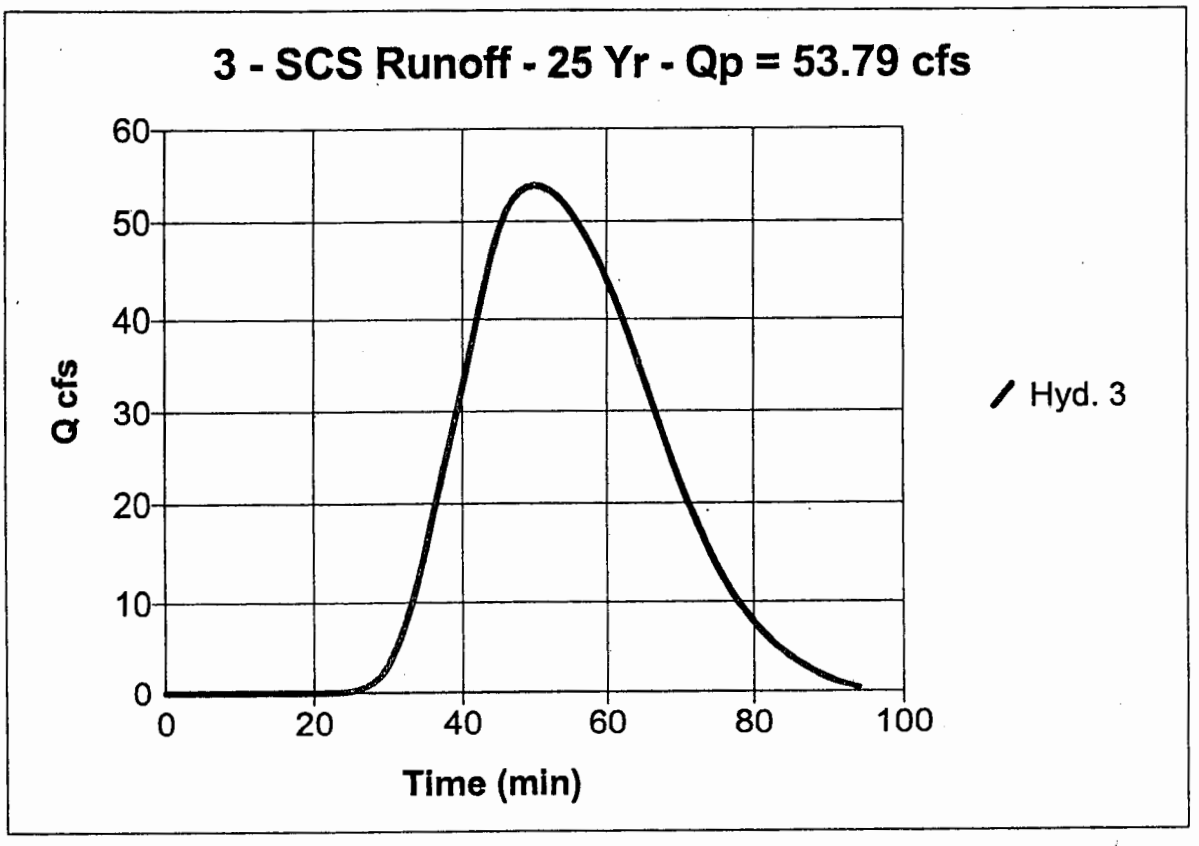
English

Hyd. No. 3

Basin 3

Hydrograph type	= SCS Runoff	Peak discharge	= 53.79 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 42.90 ac	Curve number	= 86
Basin Slope	= 2.4 %	Hydraulic length	= 1608 ft
Tc method	= LAG	Time of conc. (Tc)	= 24.5 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 99,939 cuft



Hydrograph Plot

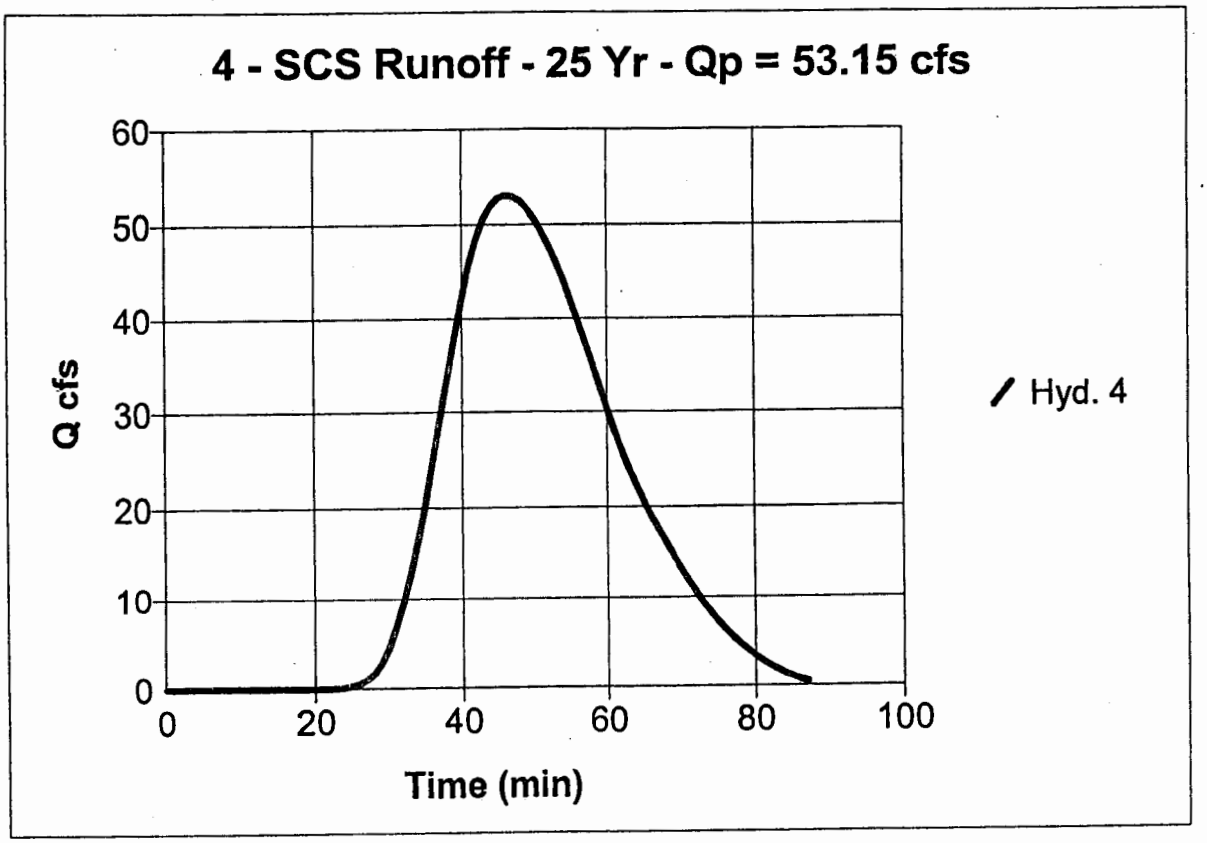
English

Hyd. No. 4

Basin 4

Hydrograph type	= SCS Runoff	Peak discharge	= 53.15 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 37.10 ac	Curve number	= 86
Basin Slope	= 3.9 %	Hydraulic length	= 1673 ft
Tc method	= LAG	Time of conc. (Tc)	= 19.9 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 86,427 cuft



Hydrograph Plot

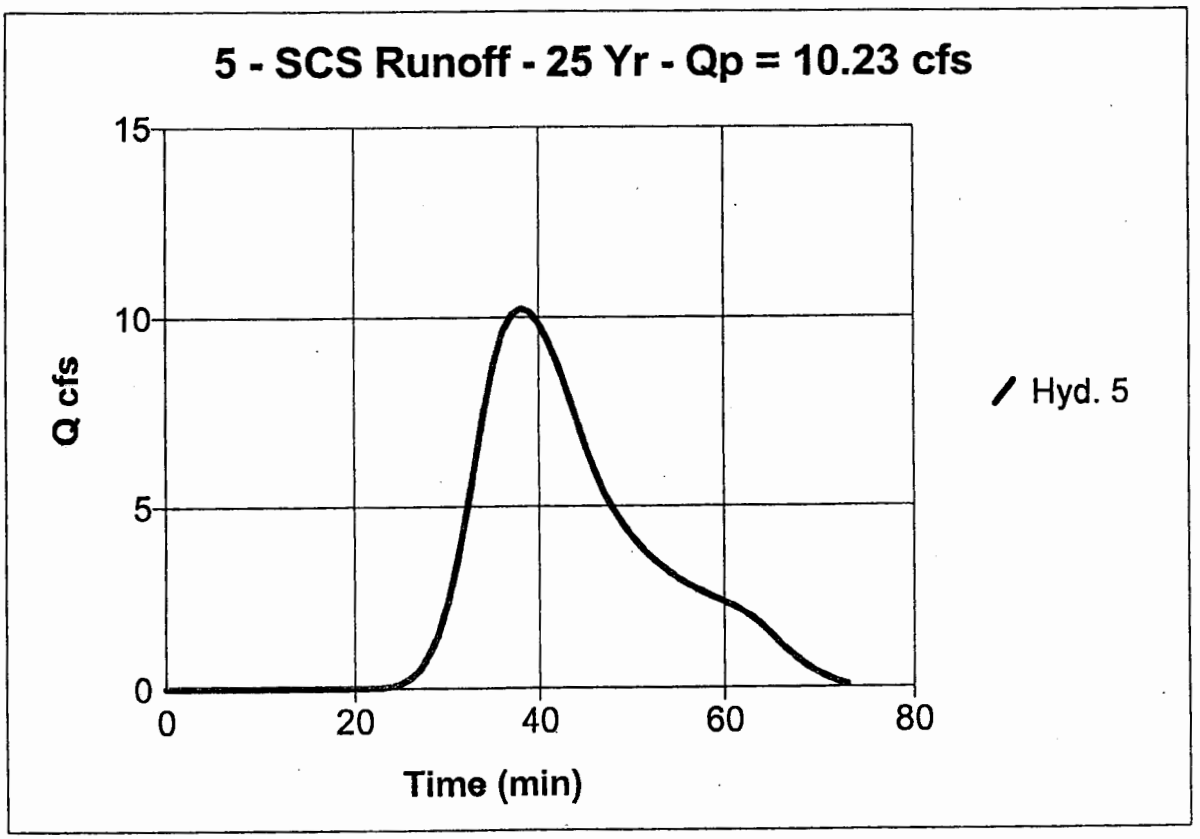
English

Hyd. No. 5

Basin 5

Hydrograph type	= SCS Runoff	Peak discharge	= 10.23 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 5.00 ac	Curve number	= 86
Basin Slope	= 5.1 %	Hydraulic length	= 710 ft
Tc method	= LAG	Time of conc. (Tc)	= 8.7 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 11,648 cuft



Hydrograph Plot

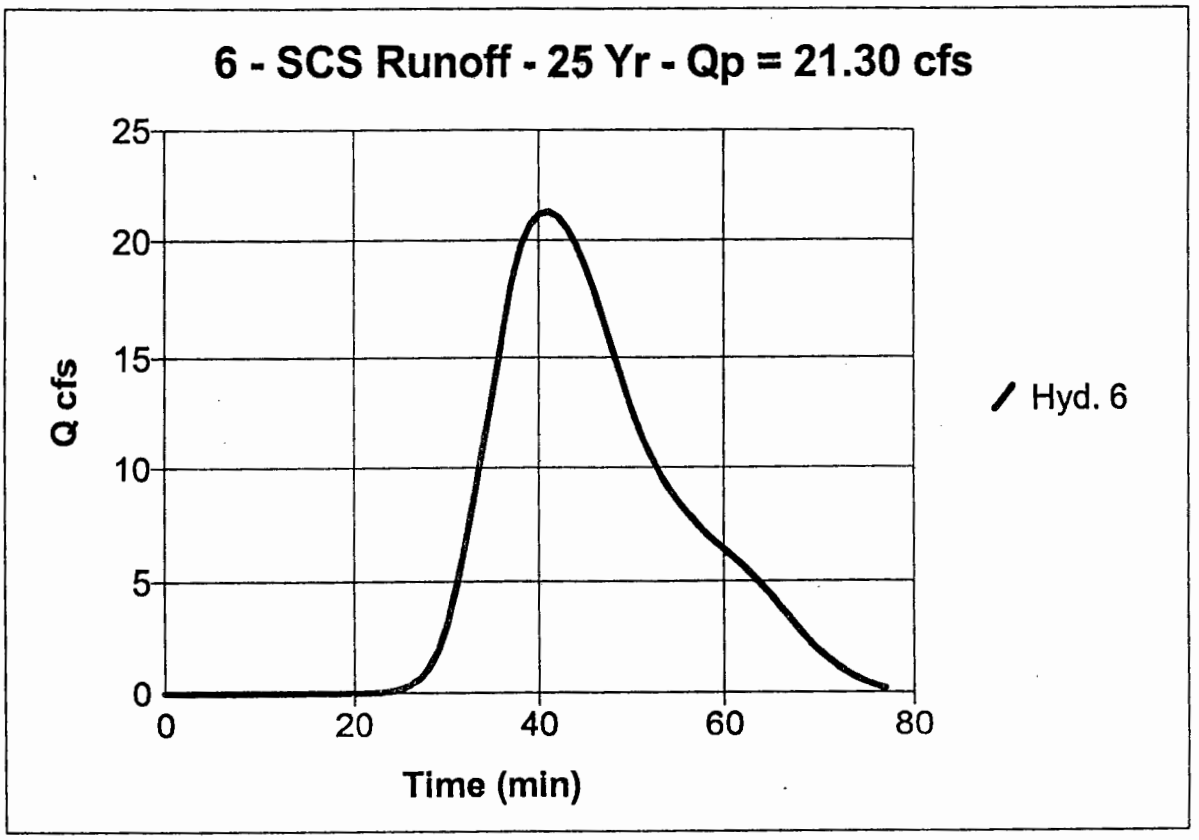
English

Hyd. No. 6

Basin 6

Hydrograph type	= SCS Runoff	Peak discharge	= 21.30 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 12.00 ac	Curve number	= 86
Basin Slope	= 4.2 %	Hydraulic length	= 913 ft
Tc method	= LAG	Time of conc. (Tc)	= 11.8 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 27,518 cuft



Hydrograph Plot

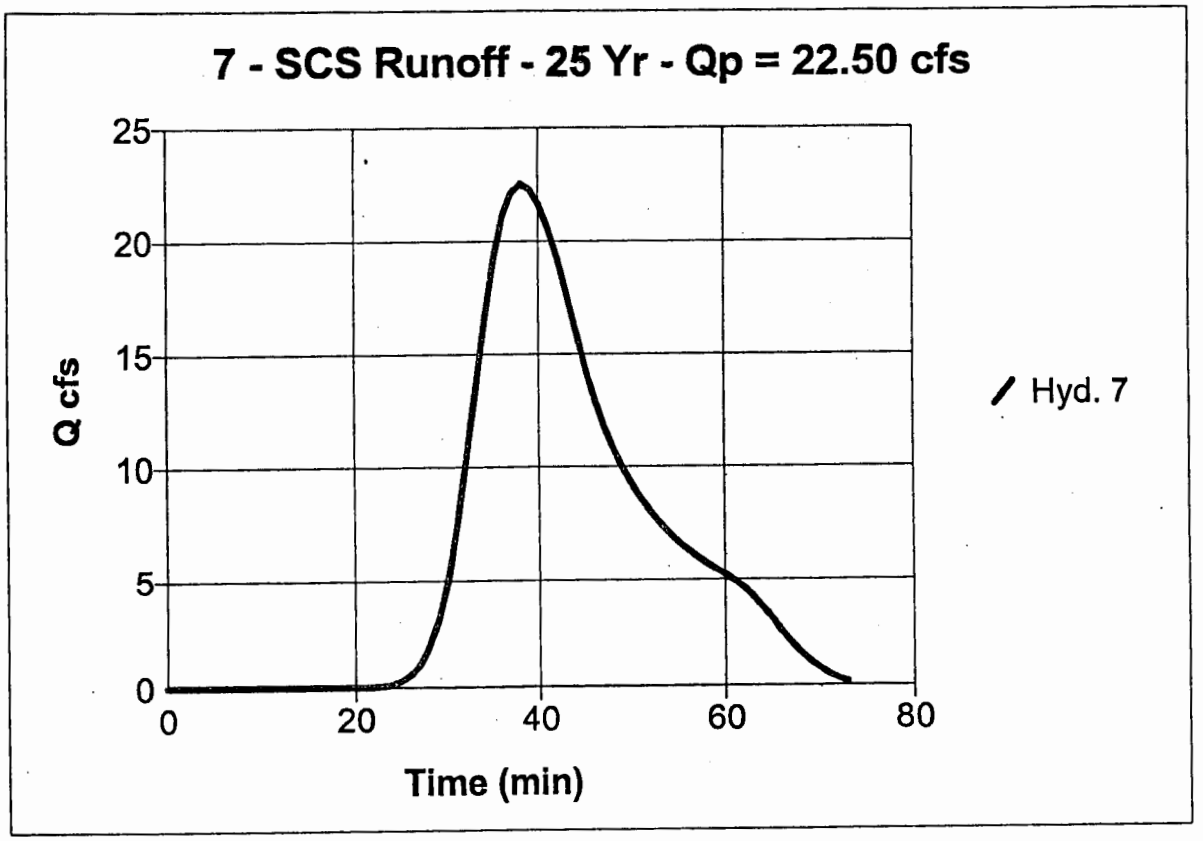
English

Hyd. No. 7

Basin 7

Hydrograph type	= SCS Runoff	Peak discharge	= 22.50 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 11.00 ac	Curve number	= 86
Basin Slope	= 5.2 %	Hydraulic length	= 733 ft
Tc method	= LAG	Time of conc. (Tc)	= 8.9 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 25,625 cuft

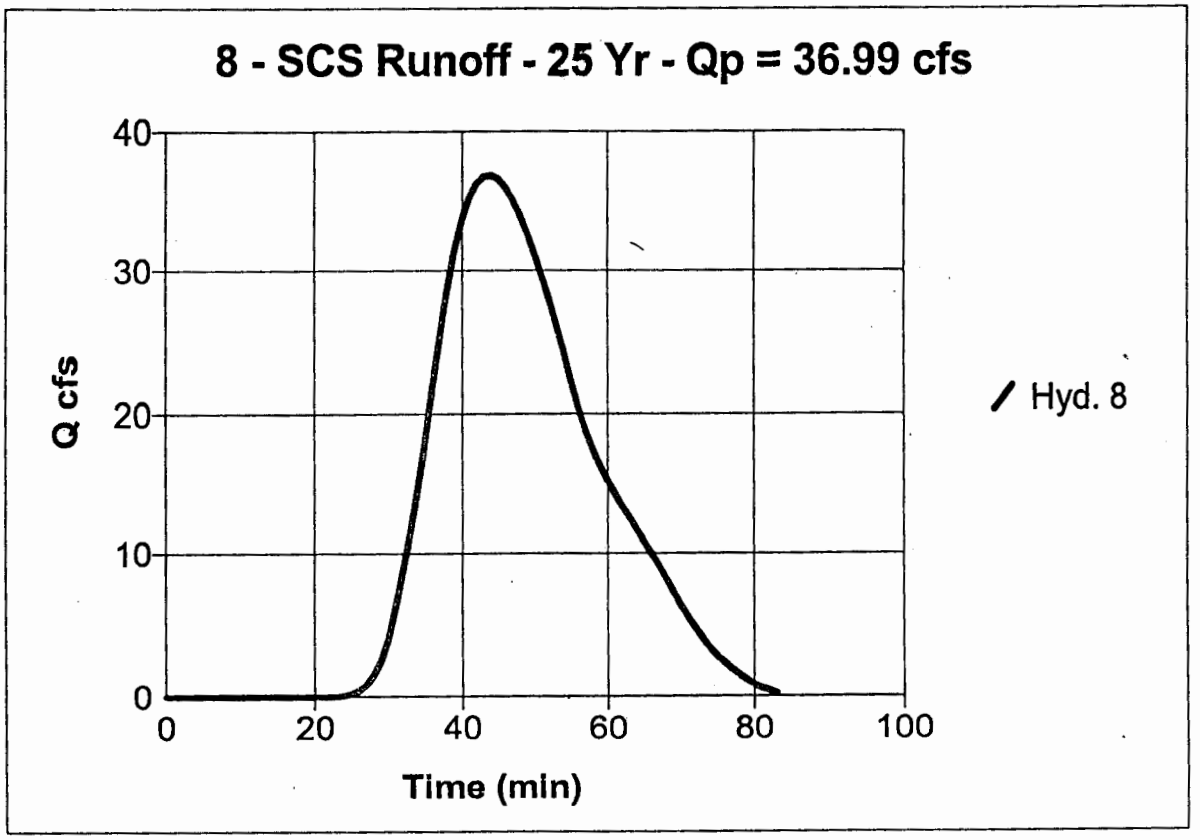


Hyd. No. 8

Basin 8

Hydrograph type	= SCS Runoff	Peak discharge	= 36.99 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 23.20 ac	Curve number	= 86
Basin Slope	= 3.9 %	Hydraulic length	= 1326 ft
Tc method	= LAG	Time of conc. (Tc)	= 16.5 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 54,722 cuft



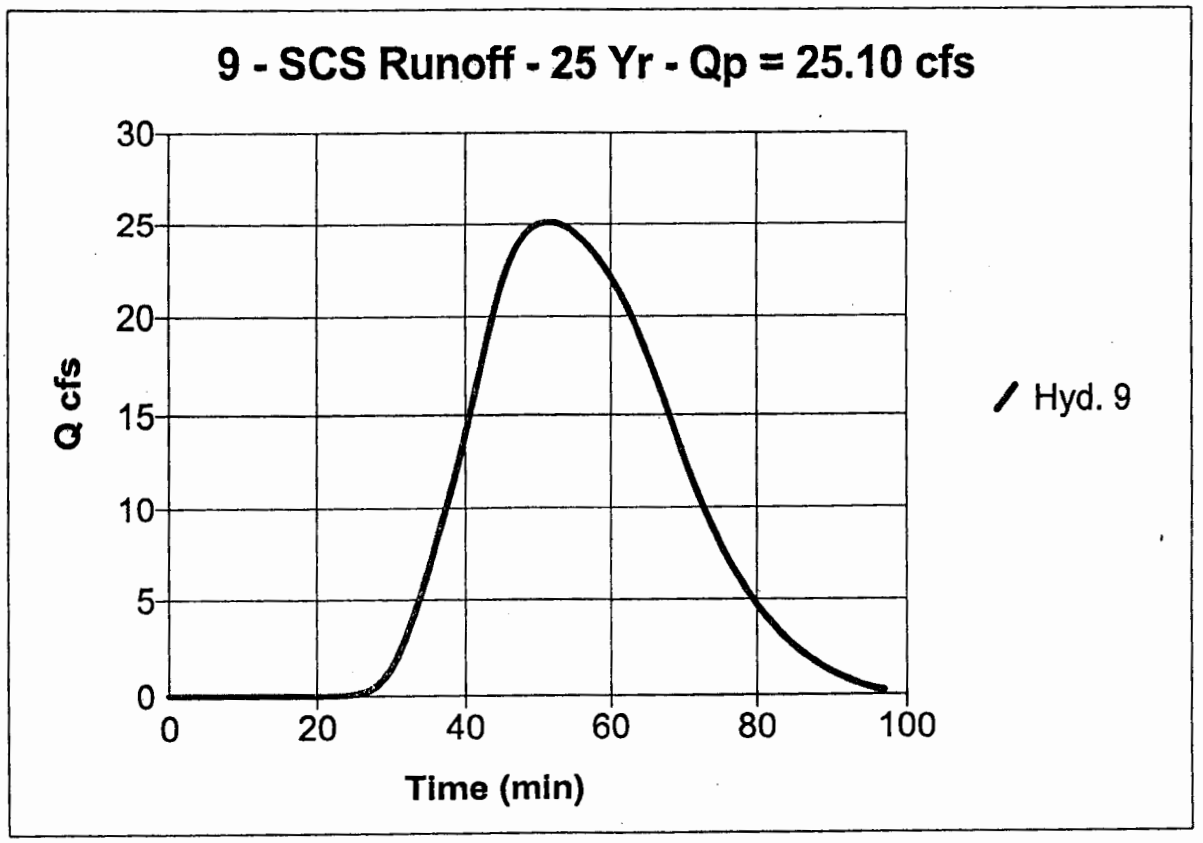
English

Hyd. No. 9

Basin 9

Hydrograph type	= SCS Runoff	Peak discharge	= 25.10 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 20.80 ac	Curve number	= 86
Basin Slope	= 3.6 %	Hydraulic length	= 2288 ft
Tc method	= LAG	Time of conc. (Tc)	= 26.6 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 48,834 cuft



Hydrograph Plot

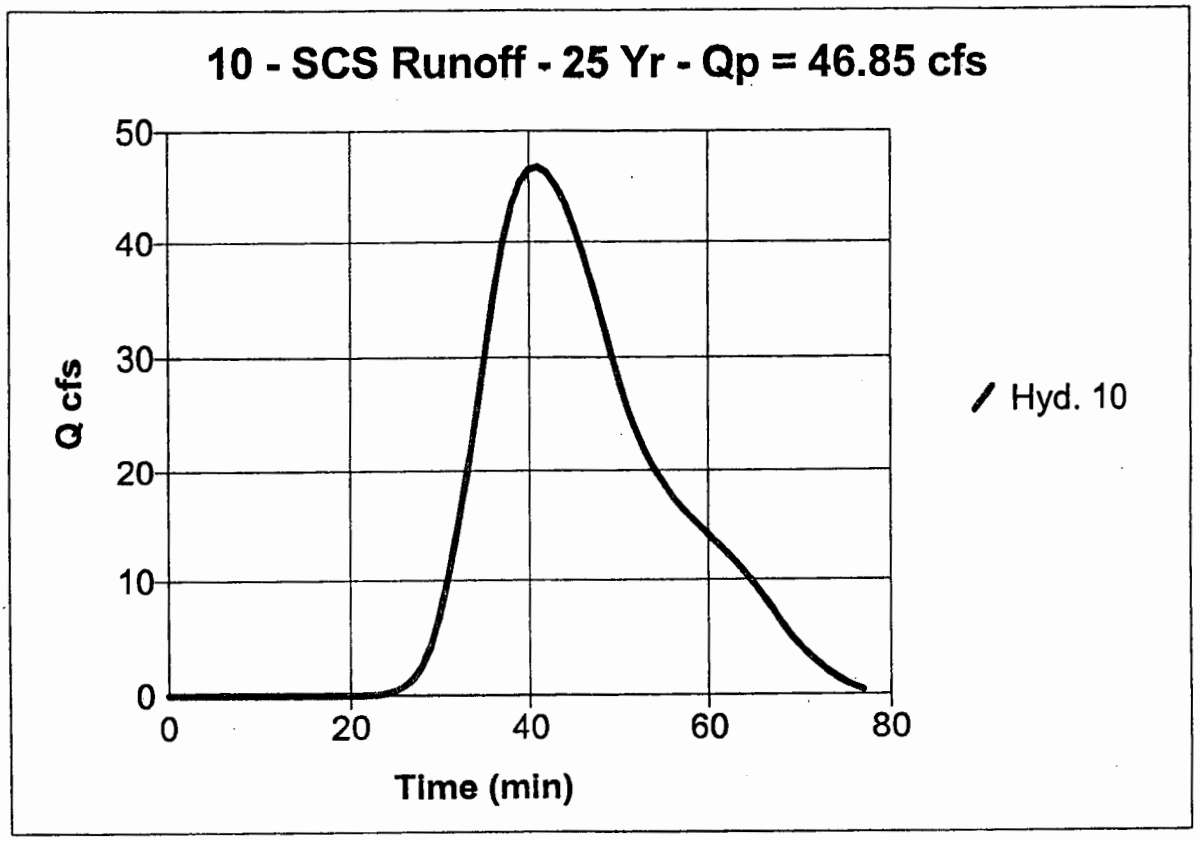
English

Hyd. No. 10

Basin 10

Hydrograph type	= SCS Runoff	Peak discharge	= 46.85 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 26.40 ac	Curve number	= 86
Basin Slope	= 4.4 %	Hydraulic length	= 1085 ft
Tc method	= LAG	Time of conc. (Tc)	= 13.2 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 60,540 cuft



Hydrograph Plot

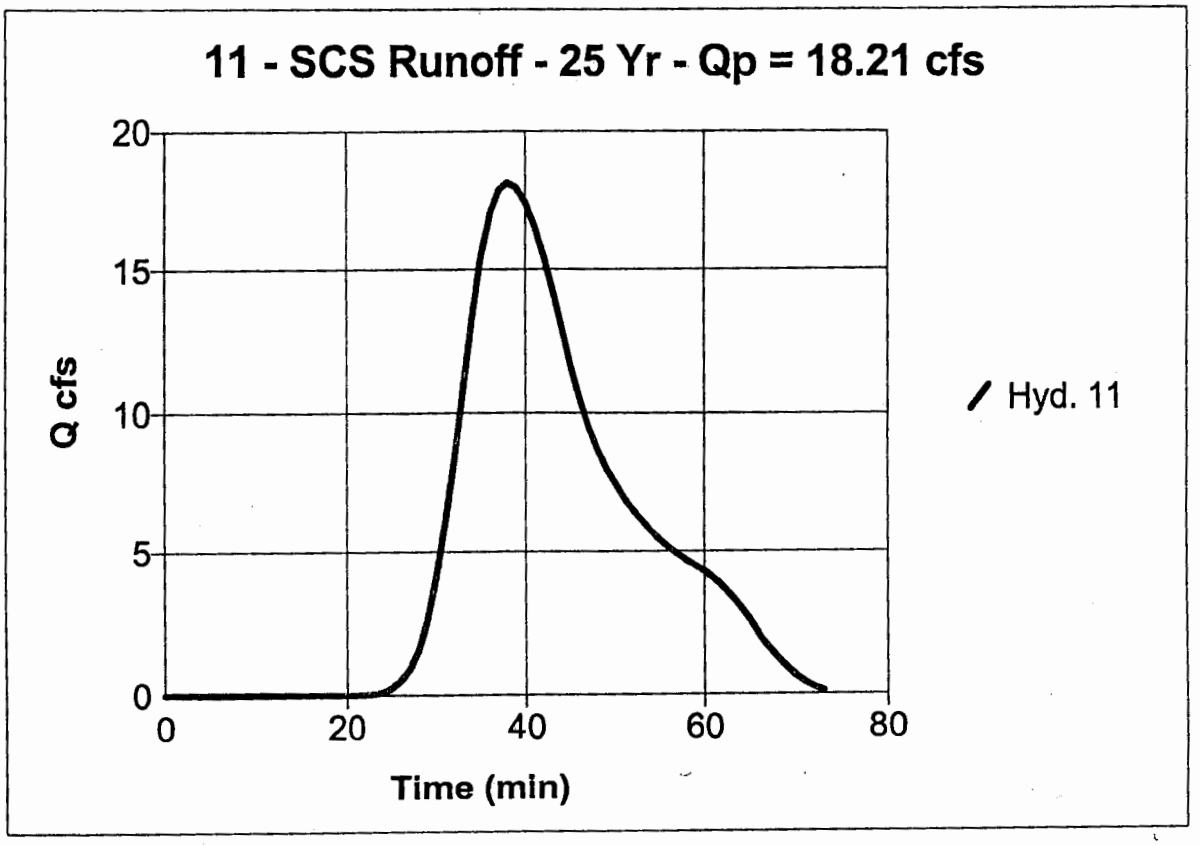
English

Hyd. No. 11

Basin 11

Hydrograph type	= SCS Runoff	Peak discharge	= 18.21 cfs
Storm frequency	= 25 yrs	Time interval	= 1 min
Drainage area	= 8.90 ac	Curve number	= 86
Basin Slope	= 3.6 %	Hydraulic length	= 673 ft
Tc method	= LAG	Time of conc. (Tc)	= 10 min
Total precip.	= 1.72 in	Distribution	= Synthetic
Storm duration	= 1 hrs	Shape factor	= 484

Total Volume = 20,733 cuft



DRAINAGE BASINS
CROWE BLANCO PROPERTIES, LLC

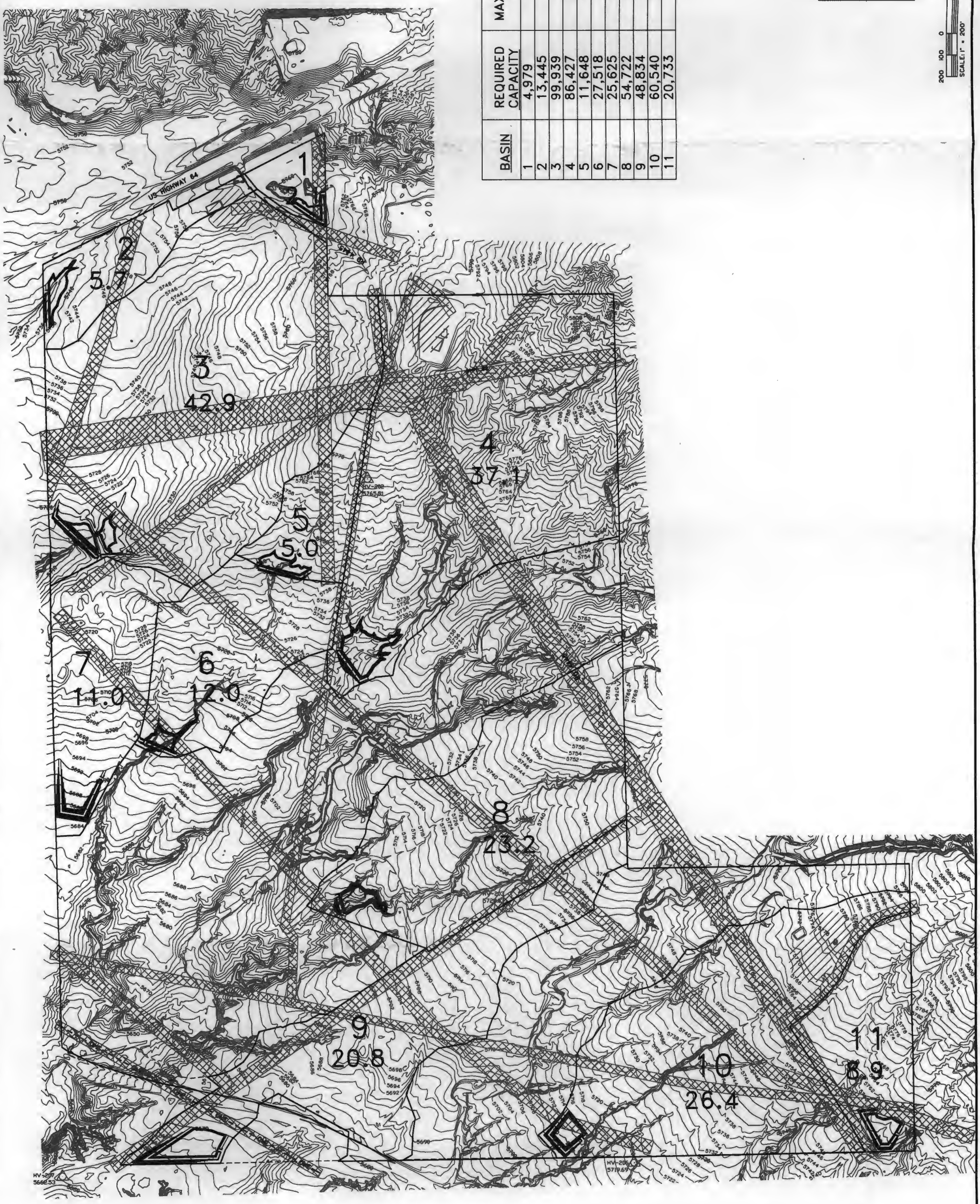
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1" = 200'
FILE:09467DRN2
SHEET 4 OF 17

REGISTERED PROFESSIONAL ENGINEER
RICHARD P. CHENEY
NEW MEXICO
NO. 3634
LAND SURVEYOR

CHENEY · WALTERS · ECHOLS INC.
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

BASIN	REQUIRED CAPACITY	MAXIMUM POND CAPACITY
1	4,979	7,144
2	13,445	19,109
3	99,939	104,473
4	86,427	111,581
5	11,648	18,003
6	27,518	29,420
7	25,625	32,260
8	54,722	60,017
9	48,834	50,414
10	60,540	66,791
11	20,733	22,671



DATE	REVISION	BY

PRINTED: March 29, 2012
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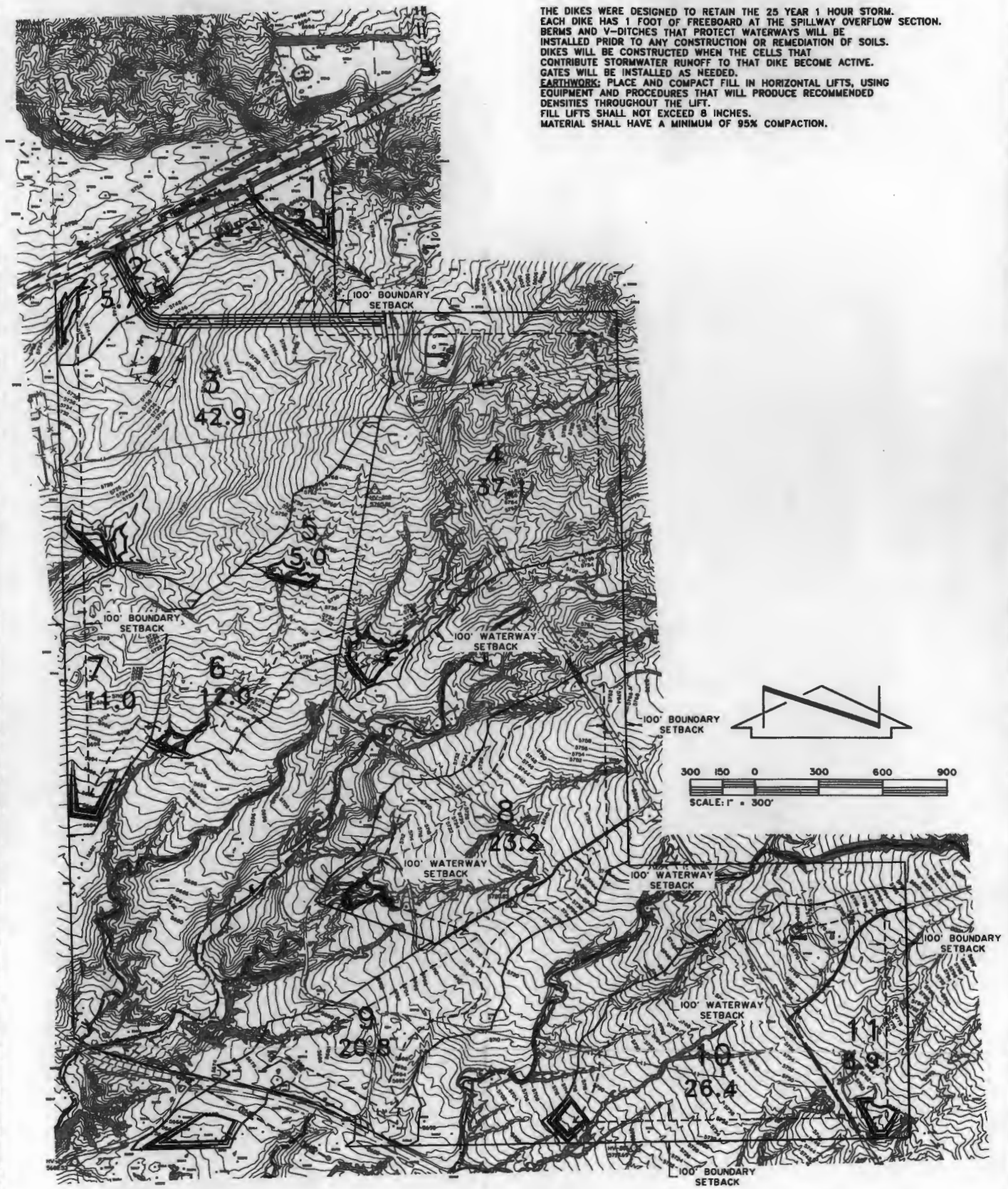
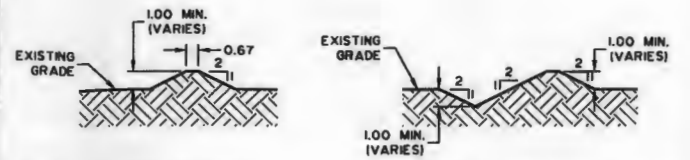
NOTES:

THE DIKES WERE DESIGNED TO RETAIN THE 25 YEAR 1 HOUR STORM.
EACH DIKE HAS 1 FOOT OF FREEBOARD AT THE SPILLWAY OVERFLOW SECTION.
BERMS AND V-DITCHES THAT PROTECT WATERWAYS WILL BE INSTALLED PRIOR TO ANY CONSTRUCTION OR REMEDIATION OF SOILS.
DIKES WILL BE CONSTRUCTED WHEN THE CELLS THAT CONTRIBUTE STORMWATER RUNOFF TO THAT DIKE BECOME ACTIVE.
GATES WILL BE INSTALLED AS NEEDED.
EARTHWORK: PLACE AND COMPACT FILL IN HORIZONTAL LIFTS, USING EQUIPMENT AND PROCEDURES THAT WILL PRODUCE RECOMMENDED DENSITIES THROUGHOUT THE LIFT.
FILL LIFTS SHALL NOT EXCEED 8 INCHES.
MATERIAL SHALL HAVE A MINIMUM OF 95% COMPACTION.



NOTE:

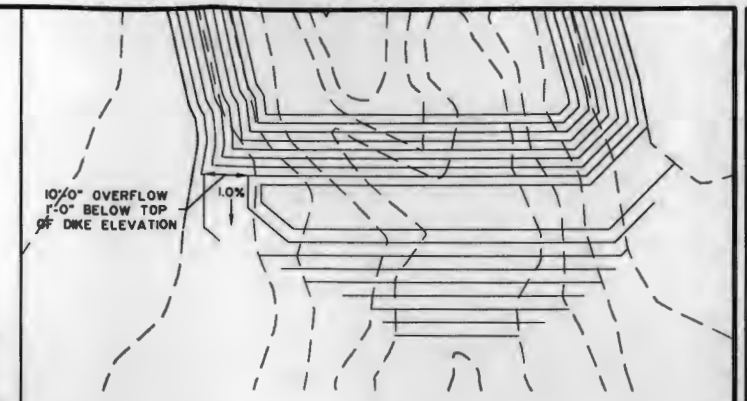
THE USE OF AN EARTH BERM MAY OR MAY NOT REPLACE THE USE OF SILT FENCE PLACEMENTS.



EARTH BERM WITHOUT DITCH
CREATE BERM BY DUMPING MATERIAL ON EXISTING SURFACE TO INTERCEPT RUNOFF WHEN NATURAL GRADES ARE PRESENT TO ENSURE DRAINAGE TO SETTLEMENT AREA.

EARTH BERM WITH DITCH
CREATE BERM BY PLOWING WINROW AND ADDING MATERIAL AS NEEDED TO FINISH BERM IN AREAS THAT WINROW WILL NOT DELIVER ENOUGH MATERIAL TO ENSURE POSITIVE CONTROL BY DITCH TO DIRECT RUNOFF TO SETTLEMENT AREA.

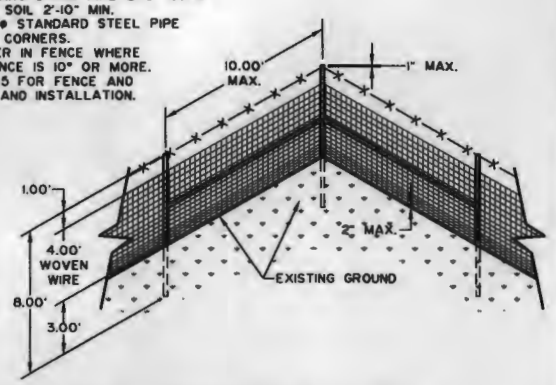
E/5 DETAIL OF EARTH BERMS FOR CELLS AND PERIMETER
SCALE 1" = 5'



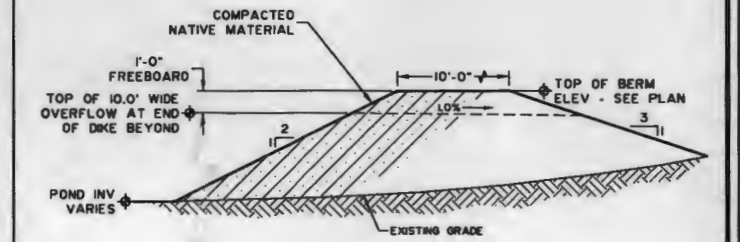
A/5 TYPICAL OVERFLOW PLAN
SCALE: 1" = 20'

NOTE:

1. USE 4"ø STANDARD STEEL PIPE 8'-0" LONG POST - EMBED IN SOIL 2'-10" MIN.
2. INSTALL 1 - 4"ø STANDARD STEEL PIPE H-BRACE AT ALL CORNERS.
3. INSTALL CORNER IN FENCE WHERE ANGULAR DIFFERENCE IS 10° OR MORE.
4. SEE DETAIL D/5 FOR FENCE AND WIRE MATERIALS AND INSTALLATION.



F/5 FIELD FENCE CORNER POST DETAIL
SCALE 1" = 5'

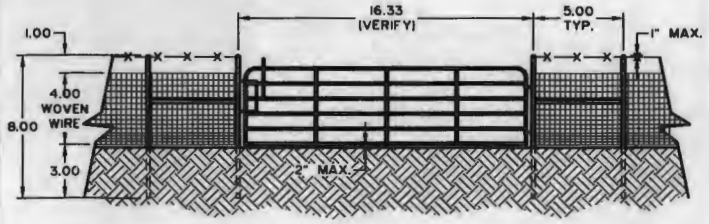


NOTES:
1. DESIGN STORM FOR POND SIZING: 25 YEAR, 1 HOUR
2. MINIMUM DEPTH OF FREEBOARD: 1 FOOT

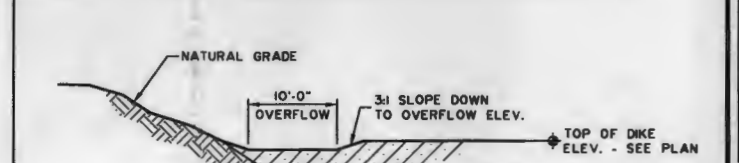
B/5 TYPICAL RETENTION POND SLOPE DETAIL
SCALE: 1/4" = 1'-0"

NOTE:

1. USE 4"ø STANDARD STEEL PIPE 8'-0" LONG POST - EMBED IN SOIL 2'-10" MIN.
2. INSTALL 1 - 4"ø STANDARD STEEL PIPE H-BRACE AT ALL GATE OPENINGS.
3. SEE DETAIL D/5 FOR FENCE AND WIRE MATERIALS AND INSTALLATION.
4. GATE TO BE 52" POWDER RIVER CLASSIC GATE WITH HINGE AND LOCKABLE LEVER LATCH.
5. GATE AT ENTRY SHALL BE TWO (2) 16' GATES WITH HINGE AND CENTER LOCKABLE LEVER LATCH.



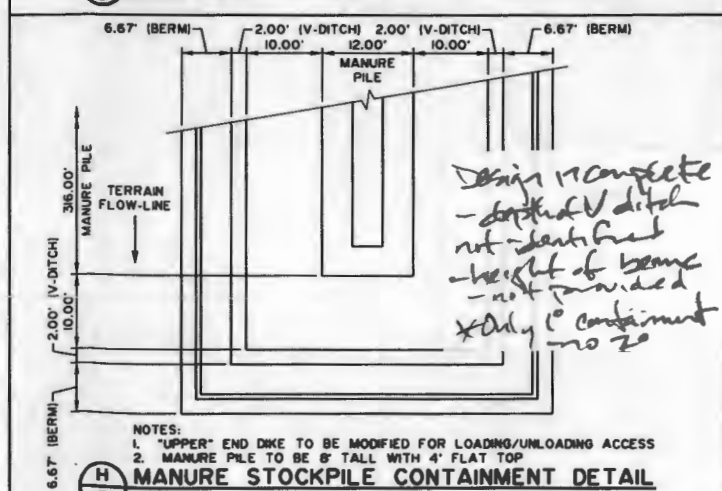
G/5 FIELD FENCE GATE INSTALLATION DETAIL
SCALE 1" = 5'



NOTE:

OVERFLOW MAY BE PLACED AT EITHER END OF THE RETENTION DIKE - SEE PLAN FOR SUGGESTED LOCATION.

C/5 DIKE OVERFLOW DETAIL
SCALE: 1" = 10'

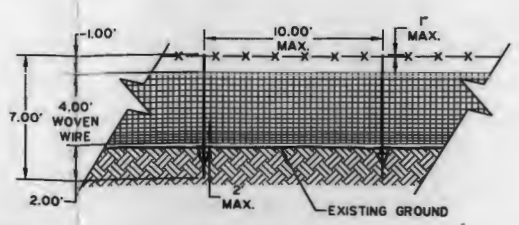


NOTES:
1. "UPPER" END DIKE TO BE MODIFIED FOR LOADING/UNLOADING ACCESS
2. MANURE PILE TO BE 8' TALL WITH 4' FLAT TOP

H/5 MANURE STOCKPILE CONTAINMENT DETAIL
SCALE : N.T.S.

NOTE:

1. USE 7.0' STEEL TEE POST DRIVE 18" TO 24" IN GROUND MAXIMUM 10' APART.
2. USE 4.0' HIGH WOVEN STEEL WIRE FIELD FENCE TIED TO TEE POST AT TOP, BOTTOM AND MIDDLE OF FENCE.
3. INSTALL 1 (ONE) STRAND TWISTED HEAVY GAGE BARBED WIRE TIED AT EACH TEE POST WITHIN 1" OF POST TOP.
4. INSTALL 1 (ONE) 4"ø STANDARD STEEL PIPE POST EVERY 100 (ONE HUNDRED) FEET OF STRAIGHT FENCE.



D/5 FIELD FENCE AND TEE POST DETAIL
SCALE 1" = 5'

BY	REVISION	DATE

PRINTED: March 29, 2012
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CHENEY·WALTERS·ECHOLS
ENGINEERS · SURVEYORS
908 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-1303

NO. 3634 REGISTERED PROFESSIONAL ENGINEER STATE OF NEW MEXICO

RETENTION DIKES AND DETAILS
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1"=300'
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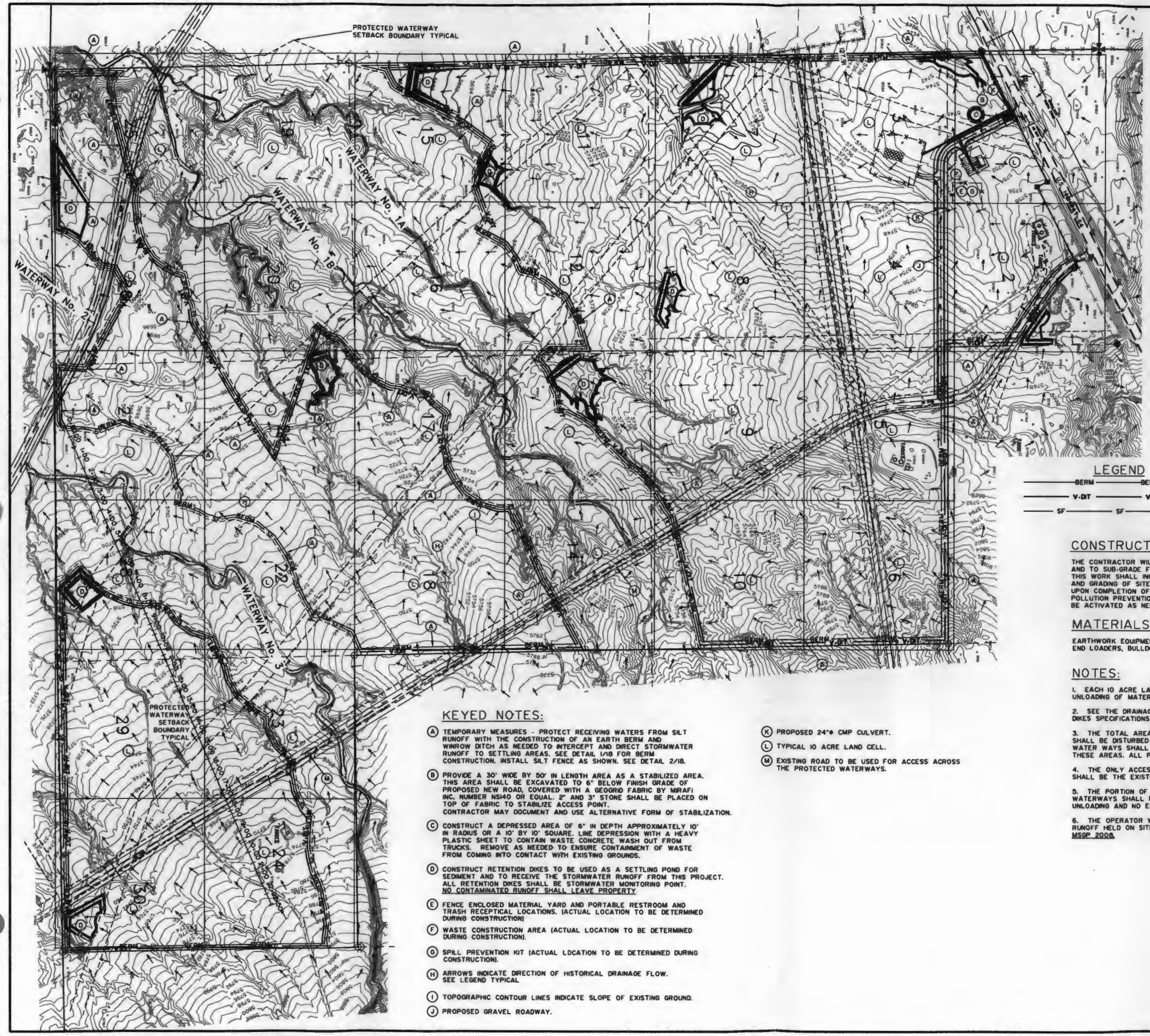
SHEET 5 OF 17



EPA CONSTRUCTION GENERAL PERMIT

THE DEVELOPER AND EVERY CONTRACTOR DOING WORK WITHIN THIS DEVELOPMENT SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE EPA's CONSTRUCTION GENERAL PERMIT (CGP), JUNE 30, 2008, AND THE MULTI-SECTOR GENERAL PERMIT (MGSP) DATED SEPTEMBER, 29, 2008 WHICH WILL INCLUDE PREPARING, IMPLEMENTING, AND UPDATING AS NECESSARY A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). CHENEY-WALTERS-ECHOLS, INC. ASSUMES NO RESPONSIBILITY FOR THE COMPLIANCE WITH THESE REGULATIONS.

MATERIALS LIST

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

SUBCONTRACTORS LIST

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

LEGEND

- BERM — BERM — EARTH BERM PLACEMENT
- V-DIT — V-DIT — V-DITCH AS NEEDED
- SF — SF — SF — SILT FENCE PLACEMENT
- EXISTING DRAINAGE FLOW DIRECTION

CONSTRUCTION SEQUENCE

THE CONTRACTOR WILL COMPLETE ALL EARTHWORK ON PROPERTY AND TO SUB-GRADE FOR PROPOSED COUNTY ROAD AND ACCESS. THIS WORK SHALL INCLUDE THE ROAD AND BUILDING PADS AND GRADING OF SITE.
UPON COMPLETION OF THE CONSTRUCTION OF THE STORMWATER POLLUTION PREVENTION MEASURES THE 10 ACRE LAND CELLS SHALL BE ACTIVATED AS NEEDED.

MATERIALS STORED ON SITE

EARTHWORK EQUIPMENT INCLUDING TRACK HOES, SCRAPERS, FRONT END LOADERS, BULLDOZERS, ROAD GRADERS AND DUMP TRUCKS.

NOTES:

1. EACH 10 ACRE LAND CELL SHALL BE USED FOR LOADING AND UNLOADING OF MATERIAL AS VOLUME OF RECLAMATION REQUIRES.
2. SEE THE DRAINAGE PLANS FOR CONSTRUCTION OF THE RETENTION DIKES SPECIFICATIONS.
3. THE TOTAL AREA OF THIS PROJECT SITE IS 289 ACRES. 208 ACRES SHALL BE DISTURBED DURING THE USE OF THIS SITE. THE PROTECTED WATER WAYS SHALL BE 81 ACRES AND NO LAND SHALL BE DISTURBED IN THESE AREAS. ALL PROTECTED WATERWAYS EMPTY INTO LARGO CANYON.
4. THE ONLY ACCESS TO BE USED ACROSS THE PROTECTED WATERWAYS SHALL BE THE EXISTING ROADS AS IDENTIFIED ON THIS PLAN.
5. THE PORTION OF THE 10 ACRE LAND CELLS THAT LIE IN THE PROTECTED WATERWAYS SHALL NOT BE DISTURBED OR USED FOR STORING, LOADING OR UNLOADING AND NO EQUIPMENT SHALL LEAVE THE EXISTING ROADWAYS.
6. THE OPERATOR WILL MONITOR REMEDEATED SOIL PILES AND STORMWATER RUNOFF HELD ON SITE WITHIN THE 10 ACRE LAND CELLS AS REQUIRED BY THE MSGP 2008.

KEYED NOTES:

(A) TEMPORARY MEASURES - PROTECT RECEIVING WATERS FROM SILT RUNOFF WITH THE CONSTRUCTION OF AN EARTH BERM AND WINROW DITCH AS NEEDED TO INTERCEPT AND DIRECT STORMWATER RUNOFF TO SETTLING AREAS. SEE DETAIL 1/18 FOR BERM CONSTRUCTION. INSTALL SILT FENCE AS SHOWN. SEE DETAIL 2/18.

(B) PROVIDE A 30' WIDE BY 50' IN LENGTH AREA AS A STABILIZED AREA. THIS AREA SHALL BE EXCAVATED TO 6" BELOW FINISH GRADE OF PROPOSED NEW ROAD, COVERED WITH A GEOGRID FABRIC BY MIRAFI INC. NUMBER NS140 OR EQUAL. 2" AND 3" STONE SHALL BE PLACED ON TOP OF FABRIC TO STABILIZE ACCESS POINT.
CONTRACTOR MAY DOCUMENT AND USE ALTERNATIVE FORM OF STABILIZATION.

(C) CONSTRUCT A DEPRESSED AREA OF 6" IN DEPTH APPROXIMATELY 10' IN RADIUS OR A 10' BY 10' SQUARE. LINE DEPRESSION WITH A HEAVY PLASTIC SHEET TO CONTAIN WASTE CONCRETE WASH OUT FROM TRUCKS. REMOVE AS NEEDED TO ENSURE CONTAINMENT OF WASTE FROM COMING INTO CONTACT WITH EXISTING GROUNDS.

(D) CONSTRUCT RETENTION DIKES TO BE USED AS A SETTLING POND FOR SEDIMENT AND TO RECEIVE THE STORMWATER RUNOFF FROM THIS PROJECT. ALL RETENTION DIKES SHALL BE STORMWATER MONITORING POINT. NO CONTAMINATED RUNOFF SHALL LEAVE PROPERTY

(E) FENCE ENCLOSED MATERIAL YARD AND PORTABLE RESTROOM AND TRASH RECEPTICAL LOCATIONS. (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION)

(F) WASTE CONSTRUCTION AREA (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION).

(G) SPILL PREVENTION KIT (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION).

(H) ARROWS INDICATE DIRECTION OF HISTORICAL DRAINAGE FLOW. SEE LEGEND TYPICAL

(I) TOPOGRAPHIC CONTOUR LINES INDICATE SLOPE OF EXISTING GROUND.

(J) PROPOSED GRAVEL ROADWAY.

(K) PROPOSED 24"ø CMP CULVERT.

(L) TYPICAL 10 ACRE LAND CELL.

(M) EXISTING ROAD TO BE USED FOR ACCESS ACROSS THE PROTECTED WATERWAYS.

200 100 0 200 400 600
1" = 200' SCALE IN FEET

DATE	REVISION	BY

PRINTED: March 29, 2012
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NEW MEXICO REGISTERED PROFESSIONAL ENGINEER NO. 3634

STORMWATER POLLUTION PREVENTION PLAN
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1" = 200'
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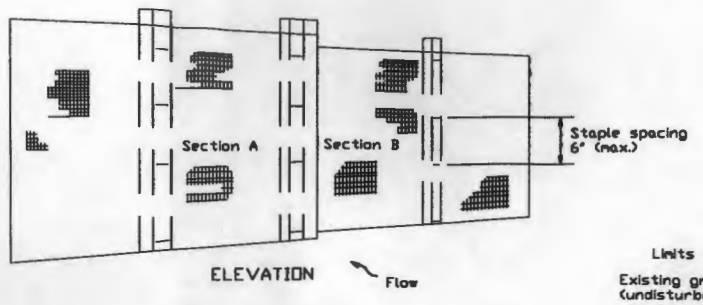
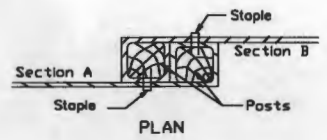


ELEVATION

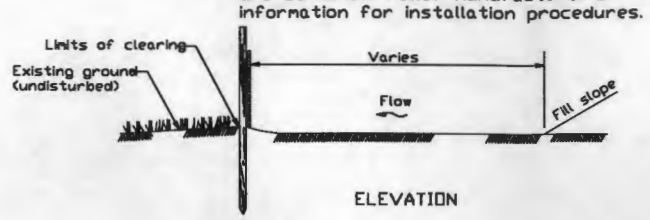


PLAN

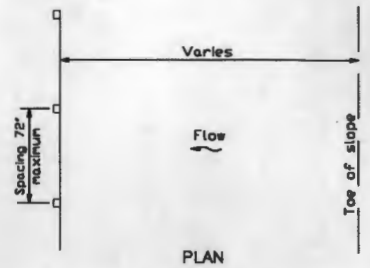
JOINING TWO ADJACENT SILT FENCE SECTIONS

NOTE:

1. Dimensions not labeled are in inches
2. Use ditch installation for low flow conditions only when specified on Erosion Control Plan.
3. Alternate pre-assembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's information for installation procedures.

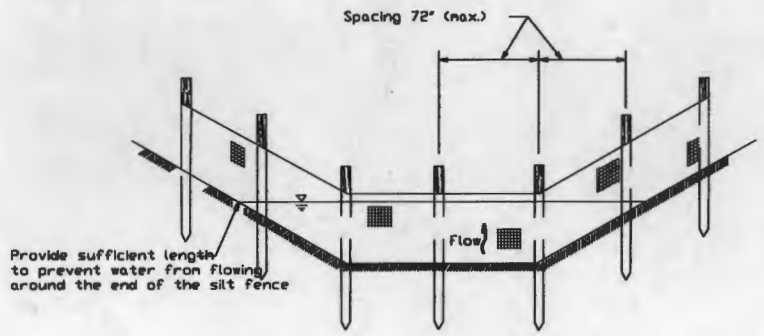


ELEVATION

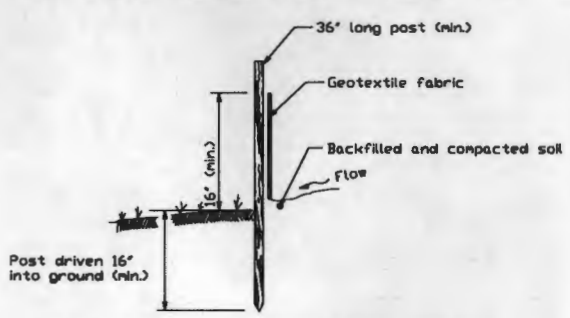


PLAN

SILT FENCE INSTALLATION AT TOE OF FILL



SILT FENCE INSTALLATION IN DITCH
(See note 2)

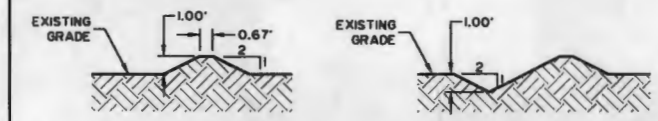


POST AND FABRIC INSTALLATION DETAIL

(2/18) TYPICAL SILT FENCE INSTALLATION DETAIL
SCALE: N.T.S.

NOTE:

THE USE OF AN EARTH BERM MAY OR MAY NOT REPLACE THE USE OF SILT FENCE PLACEMENTS.



EARTH BERM WITHOUT DITCH

CREATE BERM BY DUMPING MATERIAL ON EXISTING SURFACE TO INTERCEPT RUNOFF WHEN NATURAL GRADES ARE PRESENT TO ENSURE DRAINAGE TO SETTLEMENT AREA.

EARTH BERM WITH DITCH

CREATE BERM BY PLOWING WINROW AND ADDING MATERIAL AS NEEDED TO FINISH BERM IN AREAS THAT WINROW WILL NOT DELIVER ENOUGH MATERIAL TO ENSURE POSITIVE CONTROL BY DITCH TO DIRECT RUNOFF TO SETTLEMENT AREA.

(1/18) SWPP EARTH BERM DETAIL
SCALE 1" = 5'

BY	REVISION	DATE

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NEW MEXICO PROFESSIONAL ENGINEER
NO. 3634
REGISTERED

STORM WATER POLLUTION PREVENTION DETAILS
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE: 03/21/2012
DRAWN BY: LH
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BEST MANAGEMENT PRACTICE GUIDELINE (19.15.36.8.C.14)

1. Crowe Blanco Properties, LLC / Industrial Ecosystems, Inc. Environmental Best Practice Guideline

Our environmental best practice guideline is simply undertaking day-to-day land farming activities in a way that is least likely to harm the environment. That is, the procedures and practices outlined in this document are 'best' for the environment and are preferred to certain existing procedures and practices that may create more waste and/or cause more pollution.

We are committed to ensuring our business activities are conducted in a manner that protects the environment and people who are impacted by our operations while also preserving, conserving and minimizing waste of resources.

We recognize that safe working practices and protection of the environment and those affected by our activities are fundamental to its long-term business success.

The company and its employees shall comply with all applicable health, safety and environmental laws and regulations, and apply responsible standards where laws or regulations do not exist.

This document is for guidance/advice only. Understanding and following this guideline will significantly reduce the risk of employees breaching environmental laws and regulations. The guideline should be followed, unless there is an alternative course of action that achieves the same or better environmental outcomes during land farming activities.

In summary, this industry environmental best practice guideline:-

- Gives practical guidance on how environmental best practices can be achieved in the land farming industry.
- Should be followed unless there is an alternative course of action that achieves the same or a better environmental outcome.

2. OBLIGATION OF EMPLOYEE(S)

MANAGER/SUPERVISOR RESPONSIBILITIES

Each manager/supervisor is responsible for safety and environmental activities within their area of supervision.

Responsibilities include:

- Setting good examples.
- Properly communicating policies.
- Enforcing policies.
- Promptly correcting substandard conditions.
- Reporting and investigating spills.

2.1 Obligation of the General Manager

The General Manager is responsible for site planning issues and for demonstrating that environmental best management practices have been incorporated into the development application. Any regulatory requirements placed on the site, such as consent conditions or clean-up, must be brought to the attention of the facility manager.

2.2 Obligations of the Facility and Field Supervisors (Operations Supervisor / Landfarm Operations Manager / Field Operations Manager/ Field Supervisor)

The facility and field supervisors have the overall responsibility for facility/site issues, occupational health and safety (OH&S) and environmental management of the facility/site. The facility and field supervisors also have the responsibility to ensure that all workers under their supervision are aware of and are undertaking their duties in compliance with relevant environmental legislation and industry standards.

2.3 Obligations of HSE Coordinator

IEI has responsibility to ensure appropriate training has been provided to the employees and must provide appropriate details and resources to enable them to complete their job duties without causing environmental pollution.

The HSE Coordinator is responsible for holding and documenting appropriate environmental awareness and ongoing training to all employees and subcontractors. Training should cover all aspects of environmental responsibility required of an employee, including spill response procedures, pollution controls, recycling procedures, dust/odor mitigation, and duty to notify.

EMPLOYEE RESPONSIBILITIES

Each employee shall demonstrate positive attitudes toward injury prevention and environmental stewardship.

Responsibilities include:

- Performing their job safely while protecting the environment.
- Understanding safety and environmental policies related to their job duties/tasks.
- Actively participating in safety and environmental training and meetings.
- Immediately reporting unsafe conditions and practices.
- Immediately reporting spills to their supervisor.

2.4 Obligations of the truck driver(s)

The truck driver has responsibility for performing work at the facility and on locations without causing environmental harm through spillage or leakage of oilfield waste.

The driver is responsible for safe and timely work without causing spillage on site or en route. The driver should be made aware of, and should then observe, all environment requirements that apply to a particular site, such as site access, work restrictions and handling requirements.

The driver should understand the importance of appropriate environmental controls and raise any concerns regarding such controls with the Field Operations Manager. In the event of a spill/leak, truck drivers will immediately notify the Emergency Response Coordinator(s) and the facility spill reporting/corrective actions and/or contingency plan will be implemented accordingly.

2.5 Obligations of General Personnel
(Equipment Operators, Field Technicians, Centrifuge Operators/Helpers, Laborers)

General personnel have a responsibility to ensure that they perform work in ways that do not cause environmental harm through spillages or leakage of oilfield waste.

It is the responsibility of all personnel to ensure oilfield waste and/or wash out/down residue from their activities does not contaminate drains or waterways. Servicing and clean-up of equipment will occur off-site at the contracted mechanics shop.

The company or business has a duty to provide appropriate on the job training that addresses industry competency standards in environmental awareness to all employees and subcontractors. Training should cover all aspects of environmental responsibility required of a landfarm employee, including spill response procedures, pollution controls, proper clean-up procedures, noise and dust mitigation and duty to notify relevant authorities.

3. BEST PRACTICES

3.1 Acceptance/Disposal of Oilfield Waste

Purpose

Proper management during the handling, acceptance, and disposal of oilfield waste can minimize the risk of detrimental impact on the environment.

Applications

- For facility personnel
- For facility managers overseeing landfarm activities

Best Management Practices

- The proper handling/acceptance/disposal of oilfield waste must be ensured to prevent spillage which could potentially contaminate the stormwater system.
- Appropriate spills controls will be in place before disposal begins.
- The facility managers will need to be satisfied that all appropriate pollution controls have been placed before disposal occurs.
- Spills and leaks occurring during the disposal process must be cleaned immediately (also refer to the company SPCC & Contingency Plan).

Inspection and Maintenance

- Pollution controls should be in place before disposal of oilfield waste. If personnel have any concerns regarding pollution controls, they should be raised with the facility manager(s).
- The facility manager(s) must maintain vigilance or delegate authority to ensure that pollution control procedures are in place.

3.2 Equipment Maintenance

Purpose

Proper vehicle/equipment maintenance can minimize the risk of any detrimental impact on the environment.

Applications

- For all personnel
- For the company contracted mechanic
- For facility managers

Best Management Practices

- Equipment will be serviced off-site and washed down (if needed) at the contracted mechanic's shop.
- When selecting a contracted mechanic, the company will require them to be environmentally conscious.
- Vehicles/equipment and machinery must be regularly serviced and maintained to minimize noise and exhaust emissions and oil and fuel drips.
- The facility manager or delegate must be satisfied that all appropriate pollution controls are in place before servicing begins.
- A third party company is utilized to pick up and recycle "used motor oil".
- Where possible, equipment should be set up on site. This reduces the potential of leakages from hoses and fittings that could contaminate the stormwater system.

Inspection and Maintenance

- Inspect and maintain vehicles/equipment & machinery regularly to minimize leaks and drips.
- The Facility Manager will make arrangements with the contracted mechanic to transport equipment off-site to be services/cleaned.

4. FUGITIVE DUST & ODOR EMISSIONS

As a landfarm facility, we are responsible for controlling fugitive dust and odor emissions related to landfarm operations.

FUGITIVE DUST EMISSIONS - are a result of the lack of natural precipitation and moisture to unpaved roadways and biopiles on the facility.

ROAD AND YARD DUST

- Minimize fugitive dust emissions due to vehicle travel by:
  - site layout and design
  - Posting vehicle speed limits

  During the drier months, when natural precipitation is not being received regularly, unpaved roadways will be sprayed using fresh water.
- Natural vegetation will be allowed to grow to help provide barriers

DUST FROM BIOPILES

- Minimize fugitive dust emissions from biopiles by:
  - Trenching the biopiles, as needed, with water (fresh, centrate or storm run-off). Refer to Section 5-Stormwater & Section 12-Centrate Water within this document Also refer to binder Section 19.15.36.C.6 Operational/Management Plan – 5.4 Centrate Water and 10.8 Run On/Off Water.

ODOR EMISSIONS - are a natural result/occurrence associated with the bioremediation process.

ODOR CONTROL

- Minimize nuisance odors by:
  - When feasible, manure, used as part of the bioremediation process, will be stored on areas of the facility furthest from nearby residence(s);
  - Biopiles located nearest to residential areas will be "turned" early in the week between the hours of 8:00 am – 5:00 pm, when neighbors are most likely to be at work;
  - Reducing the holding time of waste disposed of at the tank battery; *and*
  - Screening incoming liquid waste for H2S gas. Any loads of wasted detected with Hydrogen Sulfide levels in excess of 10 ppm (PEL) will be rejected for disposal.

5. STORMWATER

Stormwater runoff is another primary pollutant of concern resulting from landfarm operations. Potential wastewater and stormwater pollutants include oilfield waste, aggregate, bioremediation additive mixtures, fuels and lubricants. (Also refer to Section 19.15.36.8.C.11)

Best management practices used to control stormwater run on/off:

- Divert clean stormwater (e.g. roof run-off) away from contaminated areas and into retention ponds.
- Use liners and berms around disposal areas to capture stormwater and process wastewater.
- Direct stormwater from the site to an on-site settling pond, or series of ponds. It is proposed that stormwater be reused in the remediation process by recycling/reusing to add as moisture to the biopiles, when it meets acceptable reuse criteria (*determined using the "Allowable Chloride in Water Calculation" spreadsheet to ensure moisture is added without exceeding the Treatment Zone Closure Standards (19.15.36.15.F.4) for chloride concentrations- as determined by EPA method 300.1, shall not exceed 500 mg/kg if the landfarm is located where ground water is less than 100 feet but at least 50 feet below the lowest elevation at which the operator will pace oil field waste. Does not contain chloride concentrations exceeding 500 ppm). * Stormwater not meeting the criteria would be transferred to an appropriate permitted injection facility by a transporter possessing an approved C-133 (copy of the State approval form should be kept in the vehicle). Also refer to binder Section 19.15.36.C.6 Operational/Management Plan – 10.8 Run On/Off Water.
- Develop a routine inspection and maintenance program to considerably reduce the potential for discharge of sediment to the wastewater collection and recycling system.
- Seal aboveground fuel and chemical additive storage areas with liners and berms to contain spills and leaks.

6. HANDLING AND DISPOSAL OF RCRA EXEMPT, NON-HAZARDOUS WASTES

The proper handling and disposal of oilfield waste is critical in assuring the health and safety of the public and protection of the environment. Some important things to remember are:

- Only RCRA exempt, NON-HAZARDOUS waste is accepted for disposal.
- Waste must conform with the chloride content test prior to being accepted for disposal.
- Waste must pass the paint filter test prior to being place into a biopile.

7.1 CONTAINERS

- Maintain containers in good conditions. Prevent leaks, ruptures and the accumulation of rainwater on the top of drums.
- If a container leaks, the material shall be transferred to a new container.
- Keep lids on, and containers closed, when not in use.
- Use funnels when pouring liquids.
- Use containers that are compatible with the waste being stored.
- Do not mix different or incompatible wastes in the same container.

7.2 LABELS

Proper labeling can reduce accidents and ensure proper disposal. Containers shall be labeled as follows:

ORIGINAL CONTAINERS

- Labels must include the chemical or product name and the proper hazard warning to enable the user to immediately understand the material's primary health and/or physical hazard(s).
- A recommended practice is to also include the common name of the material such as paint thinner, window cleaner, etc.
- Employers or employees shall not remove or deface labels on containers of hazardous chemicals.
- Labels will be legible and in English, however, for non-English speaking employees, the information will be relayed to them in their own language.

SECONDARY CONTAINERS

- Labels must include the chemical name and hazard warning.
- A recommended practice is to also include the common name of the material such as paint thinner, window cleaner, etc.

LABELING REQUIREMENTS

- When two or more labels are required, they will be displayed next to each other;
- Labels will be on a background of contrasting color;
- Labels may not be obscured by markings or attachments;
- Labels must be durable, weather resistant, and able to withstand exposure for 30 days without deterioration or discoloration;
- Labels may be printed on or affixed to a tag when package surfaces are such that labels cannot be affixed.

8. STORAGE AREAS

- When possible, storage containers will be stored in a single area; however incompatible materials shall not b stored beside each other. Collection points are allowed or work in progress, but should be moved to the main storage area once the container is filled or not in use.
- Wastes should be stored in a covered area to prevent stormwater runoff and protect the containers from weather exposure.
- Secondary containment should be provided that is able to contain a volume of at least 1/3 greater than the total volume of the largest container or all "interconnected" containers, unless the containers contain fresh water. It should have an impermeable (sealed) surface and should be under cover, preferably indoors.
- Sufficient aisle space between drums shall be allowed to ensure proper inspection for leaks or damage.

9. OPPORTUNITIES

The company and personnel will continually look for additional opportunities to reduce wastes, protect fresh water, public health, safety and the environment.

10. EMPLOYEE EDUCATION

Pollution prevention efforts can only be successful if all employees are committed to protecting the environment and minimizing operational wastes. Regular employee training and meetings will be held to discuss changes and on-going practices and procedures related to the company environmental best practices guidelines.

Employees will be trained to:

a) recognize and minimize environmental hazard's;
b) handle / dispose of waste in a manner to protect the environment;
c) clean and service vehicles/equipment in a manner to protect the environment;
d) prevent pollution and minimize waste;
e) deter fugitive dust and odor emissions;
f) Implement and practice proper container storage/labeling/disposal techniques; and
g) Implement and practice proper or new pollution prevention techniques.

11. GENERAL FACILITY OPERATIONS/MAINTENANCE

- Maintain all equipment according to manufacturer's recommendations to prevent leaks.
- Implement procedures to minimize fugitive dust and odor emissions.
- Keep a routine maintenance log on-site of vehicles/equipment.
- Provide integrated quality, safety and environmental management systems for the facility, operations of the facility and waste handling/disposal process.

GEOMAT INC
2060 Afton Place ◆ Farmington, NM 87401 ◆ Tel (505) 327-7928 ◆ Fax (505) 326-5721

September 24, 2009

Richard P. Cheney, P.E.
Cheney-Walters-Echols, Inc.
909 West Apache
Farmington, New Mexico 87401

RE: Industrial Ecosystems Landfarm
San Juan County, New Mexico
GEOMAT Project No. 91-0919

As you requested, we have performed the following field and laboratory testing of the native soils for the above referenced project.

- In-place soil moisture-density
- Soil Index Properties (Sieve Analysis and Plasticity Index)
- Moisture-Density Relationship (Proctor)
- Swell tests on remolded samples
- Permeability tests on remolded samples
- Estimate of Porosity Values

The soils from four different locations were tested. The test locations were labeled in the field (by your office) as Test Holes 1, 2, 5, and 6. The laboratory testing was performed on samples obtained and submitted by C-W-E personnel on September 14, 2009. The field testing was performed by a GEOMAT technician also on September 14, 2009. The test results are presented below.

In-place Moisture-Density			
Test Hole No.	Wet Density, pcf	Dry Density, pcf	Moisture Content, %
1	93.7	90.8	3.3
2	100.4	96.2	4.4
5	100.3	98.6	1.8
6	99.4	97.9	1.6

Soil Index Properties						
Test Hole No.	Lab No.	Liquid Limit	Plastic Limit	Plasticity Index	% Passing #200 Sieve	Classification
1	8152	28	18	10	74	CL, Lean Clay w/ Sand
2	8153	23	18	5	74	CL-ML Silty Clay w/ Sand
5	8154	NLL	NPL	NP	21	SM, Silty Sand
6	8155	NLL	NPL	NP	14	SM, Silty Sand

Moisture-Density Relationship (Proctor)			
Test Hole No.	Lab No.	Maximum Dry Density, pcf	Optimum Moisture Content, %
1	8152	108.1	16.3
2	8153	111.5	14.7
5	8154	114.0	12.0
6	8155	111.1	11.9

Swell Tests on Remolded Samples		
Test Hole No.	Lab No.	Remolded Swell Potential, %
1 & 2 Combined	8179	0.0
5 & 6 Combined	8178	1.2
Measured on samples compacted to approximately 90 percent of the ASTM D698 maximum dry density at about 3 percent below optimum water content, confined under 144 psf surcharge and submerged		
The soils from test locations 1 and 2 were combined because of the close similarity of the materials. Likewise, the soils from test locations 5 & 6 were also combined for this test because of their close similarity.		

Permeability Tests on Remolded Samples		
Test Hole No.	Lab No.	Constant Head Permeability Rate, cm/s
1 & 2 Combined	8179	6.52E-04
5 & 6 Combined	8178	3.60E-04
Measured on samples compacted to approximately 85 percent of the ASTM D698 maximum dry density.		
The soils from test locations 1 and 2 were combined because of the close similarity of the materials. Likewise, the soils from test locations 5 & 6 were also combined for this test because of their close similarity.		

Estimate of Porosity[1]	
Test Hole No.	Estimated Porosity, %
1	45
2	41
5	40
6	40

[1] Basic Soils Engineering, B.K. Hough, Second Edition

Thank you for the opportunity to work with you on this project. If have any questions or need additional information, please call.

Respectfully submitted,
GEOMAT Inc.

George A. Madrid, P.E.
President, Principal Engineer

Distribution: Addressee (2)

CHENEY-WALTERS-ECHOLS INC.
ENGINEERS ▲ SURVEYORS
909 W. APACHE ▲ FARMINGTON, NEW MEXICO 87401 ▲ (505)327-3303 ▲ C-W-E.COM

SUMMARY REPORT
MONITOR WELL INSTALLATION AND POTENTIOMETRIC SURFACE MAPPING
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS INC.

Submitted To:
Richard P. Cheney, P.E.
Cheney-Walters-Echols
909 West Apache Street
Farmington, New Mexico 87401

Submitted By:

GEOMAT Inc.
915 Malta Avenue
Farmington, New Mexico 87401

August 29, 2011
GEOMAT Project 102-1162

A permanent 2-inch diameter monitor well was installed in each boring in accordance with the approved Work Plan submitted by our drilling contractor, Enviro-Drill Inc. (EDI). Following completion, each well was developed by bailing. **As-Completed Cross-Sections** of each monitor well are attached to this report.

A geologist and/or engineer from our office monitored the drilling operations and prepared a continuous log of each boring. The **Boring Logs**, a **Lithologic Fence Diagram**, and **Generalized Geologic Cross-Sections** (based on the borings) are attached.

As described in our Work Plan, disturbance of the natural ground surface elevation at each well location was documented, based on the topography and natural vegetation surrounding each well location. With the exception of MW-5, it did not appear that any alteration of the natural ground surface elevation had taken place. At the location of MW-5, the well monument and concrete slab were constructed on a surficial layer of excess drill cuttings, and appeared to be elevated approximately one foot above the surrounding natural terrain.

After completion and development, the water level in each of the ten wells was measured using an electronic water-level indicator. Water levels were measured relative to the top of the well casing (TOC). Depth of groundwater below natural ground surface at each well location was calculated by subtracting the difference between TOC and natural ground surface (the casing "stick-up" height) from the measured water level (relative to TOC). The water-level data was used to develop a subsurface profile showing the relationship between the soil/rock materials and water levels in each boring. The unconfined water levels are presented in the attached **Water Level Measurements** table.

As shown in the table, in wells MW-2, MW-3, MW-4, and MW-5, the water level measured in the well after completion (the unconfined water level) was significantly higher than the level at which water was initially encountered during drilling (the confined water level). In wells MW-1, MW-6, MW-7, and MW-8, the unconfined water levels generally correspond to the unconfined levels observed during drilling.

Based on the differences between the unconfined and confined water levels, and the subsurface profiles illustrated on the boring logs, it appears likely that groundwater beneath the site is confined by a relatively impermeable shale strata across the north and east portion of the site. The shale strata appears to dip slightly toward the southwest, and likely terminates ("pinches out") along a roughly northwest-southeast trending line traversing the center of the site.

It was not possible to obtain a stabilized ("static") water level in wells MW-9 and MW-10 due to the slow recharge rate in these wells. As shown on the **Water Level**

Measurements table, the water elevations measured approximately three weeks after completion and development in these wells were lower than those observed during drilling, indicating that the water levels had not recovered to the original levels.

The water-bearing formation is mapped as the Nacimiento Formation (Geologic Map of the Aztec 1° x 2° Quadrangle, Northwestern New Mexico and Southern Colorado, Manley et. al., 1987). The groundwater occurs in either sandstone or siltstone. In the borings where the sandstone/siltstone is overlain by shale, the water occurs immediately below the interface between the water-bearing sandstone/siltstone and the relatively impermeable shale.

The water level data obtained from the wells were used to determine the approximate direction of groundwater flow beneath the site using the Strike and Dip Geologist's Three Point Method. The direction and gradient of groundwater flow obtained from the analyses were compiled and are presented in the attached **Results of Three Point Analyses** table. A generalized representation of the water table was constructed by plotting flow directions and spot elevations based on our three-point analyses and water level measurements, respectively. The resulting **Groundwater Elevations and Direction of Flow Map** is attached to this report. Worksheets showing the three point analyses are available upon request.

Based on the results of our subsurface exploration and three-point analyses, it appears that groundwater below the site flows generally southwest toward Largo Canyon. Some of the flow lines on the **Groundwater Elevations and Direction of Flow Map** show localized deviations from the overall southwesterly flow; these deviations appear to indicate that groundwater flows toward the three roughly parallel, southwest-trending drainage channels present on the site. It is possible that the aquifer is recharged partially by concentration and infiltration of surface water in these drainage channels. The relatively shallow groundwater observed in well MW-6 is likely due to the close proximity to one of the channels.

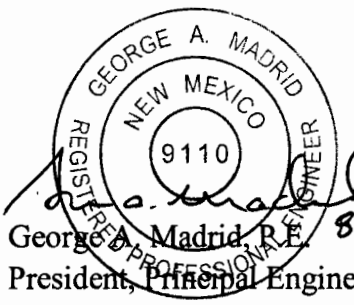
We postulate that groundwater flow beneath the site is largely stratigraphically controlled by the southwest-dipping strata, but also locally controlled by the influence of surface topography. Our generalized interpretation of the groundwater flow is shown on the attached **Interpretation of Flow Map**.

Thank you for the opportunity to work with you on this project. If you have any questions or need additional information, please let us know.

Sincerely yours,
GEOMAT Inc.

Donald R. Baldwin

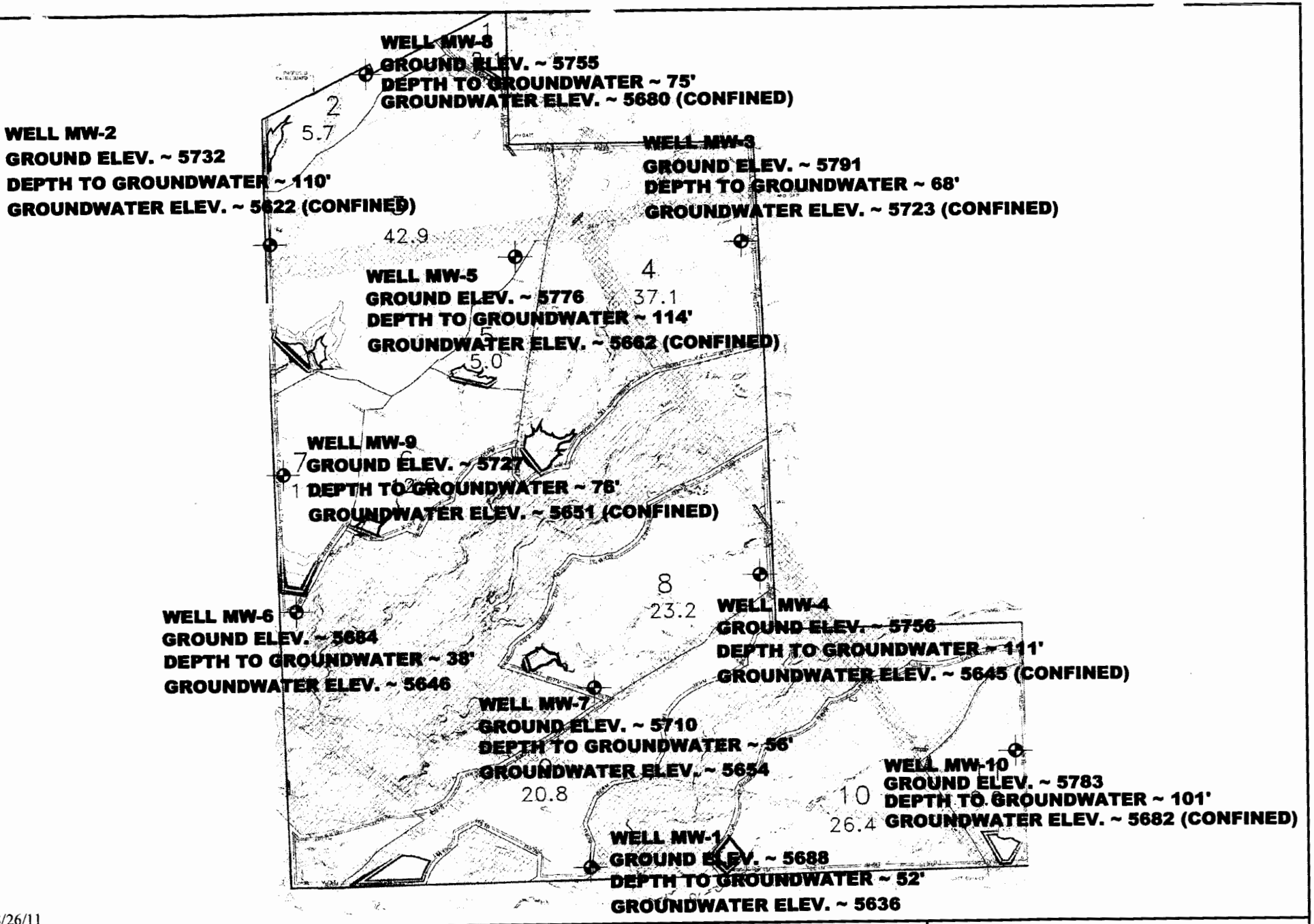
Donald R. Baldwin
Geologist



George A. Madrid, P.E. 8-29-11
President, Principal Engineer

Attachments: Site Plan
Boring Logs
Lithologic Fence Diagram
As-Completed Cross Section of Monitor Wells
Generalized Geologic Cross Sections
Water Level Measurements
Results of Three Point Analyses
Groundwater Elevations and Direction of Flow Map
Interpretation of Flow Map

Distribution: Addressee (4)



REVISED: 8/26/11

Approximate Not to Scale	SITE PLAN Monitor Well Locations (approximate) GEOMAT Project No. 102-1162	PROJECT Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico

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Borehole MW-1

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	12/8/2010
Project Number:	102-1162	Latitude:	36.71803°
Client:	Cheney-Walters-Echols	Longitude:	-107.78701°
Site Location:	Blanco, New Mexico	Elevation:	5688
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8" O.D. HSA/HQ Core	Groundwater Depth:	Approx. 51.7 ft during drilling
Sampling Method:	2" split spoon/HQ core	Logged By:	LC
Hammer Weight:	140 lbs	Remarks:	None
Hammer Fall:	30 inches		

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
							SM		1 2 3 4 5 6 7	SILTY SAND, tan to brown, loose to medium dense, slightly damp to damp
					SS 24					
					SS 24				8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	SANDY LEAN CLAY, tan, medium stiff to stiff, damp contains variable amounts of fine sand switched from auger to HQ coring equipment at approximately 21 feet recovered sandy lean clay in core barrel
					SS 24					
					SS 24					
					SS 24					
					SS 24					
					SS 24		CL			
					SS 24					
					HQ 24					
					HQ 84					
					HQ 120		SP		28 29 30 31 32 33 34 35 36 37 38 39 40	SAND, tan, fine- to coarse-grained, medium dense, slightly damp

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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Borehole MW-1

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Hammer Fall:	30 inches		

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 24				41	SAND, tan, fine- to coarse-grained, medium dense, slightly damp
					SS 24				42	
					SS 23		SP		43	switched from HQ coring equipment to auger at approximately 40 feet
					SS 5				44	
									45	trace gravel
									46	
									47	
							GP		48	GRAVEL with sand, dense, damp to moist (no sample)
					SS 24				49	SAND, tan, fine- to coarse-grained, medium dense, slightly damp
					SS 24				50	
									51	hard drililng - no sample
									52	▽ Groundwater at approximately 51.7 feet during drilling
									53	drilling stopped at 52 feet on 11/29/2010
							SP		54	water level 51.7 feet on 11/30/2010
									55	resumed on 12/8/2010
									56	
									57	
									58	
									59	
									60	SANDSTONE, gray, fine-grained, highly weathered, soft, weakly cemented
									61	
									62	
							RK		63	moderately weathered, moderately hard, moderately cemented
									64	
									65	
					SS 5				66	Total Depth 65.4 feet
									67	
									68	
									69	
									70	
									71	
									72	
									73	
									74	
									75	
									76	
									77	
									78	
									79	
									80	

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Borehole MW-2

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	12/3/2010
Project Number:	102-1162	Latitude:	36.72739°
Client:	Cheney-Walters-Echols	Longitude:	-107.79256°
Site Location:	Blanco, New Mexico	Elevation:	5732
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8" O.D. HSA/HQ Core	Groundwater Depth:	Approx. 110 ft during drilling
Sampling Method:	2" split spoon/HQ core	Logged By:	LC
Hammer Weight:	140 lbs	Remarks:	None
Hammer Fall:	30 inches		

Laboratory Results				Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)							
									1	SILTY SAND, tan, fine- to coarse-grained, loose to medium dense, damp
									2	
									3	
									4	
									5	
					SS 24				6	slightly damp
									7	
					SS 24				8	layers/lenses of clayey sand 3" to 4" thick
					SS 24				9	tan, slightly damp
					SS 24				10	
					SS 24				11	
					SS 24				12	
					SS 24				13	
					SS 24				14	
					SS 24				15	
					SS 24				16	
					SS 24				17	
					SS 24				18	
					SS 24				19	
					SS 24		SM		20	
					SS 24				21	
					SS 24				22	
					SS 24				23	
					SS 24				24	
					SS 24				25	
					SS 24				26	
					SS 24				27	
					SS 24				28	
					SS 24				29	
					SS 24				30	
					SS 24				31	
					SS 24				32	
					SS 24				33	
					SS 24				34	
					SS 24				35	
					SS 24				36	
					SS 24				37	
					SS 24				38	
					SS 24				39	
					SS 24				40	

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Borehole MW-2

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 2" split spoon/HQ core
Hammer Weight: 140 lbs
Hammer Fall: 30 inches

Date Drilled: 12/3/2010
Latitude: 36.72739°
Longitude: -107.79256°
Elevation: 5732
Boring Location: See Site Plan
Groundwater Depth: Approx. 110 ft during drilling
Logged By: LC
Remarks: None

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 24				41	SILTY SAND, tan, fine- to coarse-grained, loose to medium dense, damp
									42	
					SS 24				43	coarse-grained, slightly damp
									44	
					SS 24				45	
									46	
					SS 24		SM		47	
									48	tan to white, fine- to coarse-grained, medium dense, damp
					SS 24				49	
									50	
					SS 20				51	layers/lenses of clayey sand 3" to 6" thick
									52	damp to moist
									53	
							GP		54	GRAVEL with cobbles
									55	hard drilling - no sample
					SS 22		CL		56	SANDY LEAN CLAY, gray, soft, moist
									57	SHALE to SILTSTONE, gray, highly weathered, slightly damp
									58	
					SS 10				59	
									60	contains variable amounts of silt- and/or fine sand-size particles
					HQ 120				61	
									62	grades between shale and siltstone
									63	blue-gray, slightly damp
									64	switched from auger to HQ coring equipment at approximately 59 feet
									65	
									66	gray
									67	no core recovery 60' to 70' due to cored cobble stuck in bit
									68	
							RK		69	
									70	
					HQ 120				71	
									72	
									73	
									74	
									75	no core recovery 70' to 80'
									76	
									77	
									78	lost circulation 77' to 80'
									79	
									80	

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GEOMAT 102-11

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Borehole MW-2

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 2" split spoon/HQ core
Hammer Weight: 140 lbs
Hammer Fall: 30 inches

Date Drilled: 12/3/2010
Latitude: 36.72739°
Longitude: -107.79256°
Elevation: 5732
Boring Location: See Site Plan
Groundwater Depth: Approx. 110 ft during drilling
Logged By: LC
Remarks: None

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					HQ 120				81	SHALE to SILTSTONE, gray, highly weathered, slightly damp
									82	
									83	contains variable amounts of silt- and/or fine sand-size particles
									84	
									85	grades between shale and siltstone
									86	regained circulation
									87	no core recovery 80' to 90'
									88	
									89	
							RK		90	
					HQ 120				91	
									92	
									93	
									94	
									95	
									96	90' to 100' --> HQ core recovery = 15%, RQD = 6%
									97	
									98	
									99	SANDSTONE, light gray, fine-grained, slightly weathered, moderately hard, moderately cemented, slightly damp
									100	
					HQ 120				101	
									102	
									103	
									104	
									105	
									106	100' to 110' --> HQ core recovery = 98%, RQD = 70%
									107	
									108	slightly damp
									109	
							RK		110	▽
					HQ 120				111	wet
									112	groundwater at approximately 110 feet during drilling
									113	
									114	
									115	
									116	110' to 120' --> HQ core recovery = 75%, RQD = 41%
									117	
									118	
									119	
									120	

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Borehole MW-2

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 2" split spoon/HQ core
Hammer Weight: 140 lbs
Hammer Fall: 30 inches

Date Drilled: 12/3/2010
Latitude: 36.72739°
Longitude: -107.79256°
Elevation: 5732
Boring Location: See Site Plan
Groundwater Depth: Approx. 110 ft during drilling
Logged By: LC
Remarks: None

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					HQ 120		RK		121 122 123 124 125 126 127 128 129 130	SANDSTONE, light gray, fine-grained, slightly weathered, moderately hard, moderately cemented, slightly damp 120' to 130' --> HQ core recovery = 68%, RQD = 52% lost circulation
									131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160	Total Depth 130 feet

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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Borehole MW-3

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 12/7/2010
Latitude: 36.72721°
Longitude: -107.78402°
Elevation: 5791
Boring Location: See Site Plan
Groundwater Depth: Approx. 68 ft during drilling
Logged By: LC
Remarks: 0' - 30' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SM		1-5	SILTY SAND, tan, fine-grained, loose, damp
					SS 60		ML		6-8	SILT, light gray, soft to medium stiff, slightly damp contains trace of water-soluble salts
					SS 60		SC		9-11	CLAYEY SAND, gray to tan, fine-grained, medium dense, damp
					SS 60		RK		12-15	SILTSTONE, gray to green-gray, highly weathered, soft, damp
					SS 60		RK		16-19	slightly damp to damp
					SS 60		RK		20-24	green-gray, slightly damp
					SS 60		RK		25-30	SANDSTONE, tan, fine- to coarse-grained, highly weathered, moderately soft, weakly to moderately cemented, slightly damp contains layers/lenses of shale/siltstone 2" to 4" thick slightly damp

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Borehole MW-3

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 12/7/2010
Latitude: 36.72721°
Longitude: -107.78402°
Elevation: 5791
Boring Location: See Site Plan
Groundwater Depth: Approx. 68 ft during drilling
Logged By: LC
Remarks: 0' - 30' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					HQ 60				31	SANDSTONE, tan, fine- to coarse-grained, highly weathered, moderately soft, weakly to moderately cemented, slightly damp
									32	
									33	switched from auger to HQ coring equipment at 30 feet
									34	
									35	
									36	30' to 40' --> HQ core recovery = 52%, RQD = 22%
									37	
									38	
									39	
					HQ 120				40	
									41	moderately weathered, moderately hard
									42	
									43	color change to white
									44	
							RK		45	
									46	40' to 50' --> HQ core recovery = 83%, RQD = 41%
									47	Layer/lens of gray shale 2" to 3" thick
									48	
									49	
					HQ 120				50	
									51	gray, soft to moderately hard, damp
									52	
									53	
									54	
									55	
									56	50' to 60' --> HQ core recovery = 73%, RQD = 27%
									57	
									58	Layer/lens of carbonaceous shale 2" to 3" thick
									59	
									60	

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Borehole MW-3

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 12/7/2010
Latitude: 36.72721°
Longitude: -107.78402°
Elevation: 5791
Boring Location: See Site Plan
Groundwater Depth: Approx. 68 ft during drilling
Logged By: LC
Remarks: 0' - 30' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					HQ 120				61	SANDSTONE, tan, fine- to coarse-grained, highly weathered, moderately soft, weakly to moderately cemented, slightly damp
									62	
									63	
									64	
									65	
									66	60' to 70' --> HQ core recovery = 84%, RQD = 23%
									67	Layers/lenses of gray shale
									68	▽ Groundwater at approximately 68 feet during drilling
									69	
					HQ 120		RK		70	
									71	
									72	
									73	
									74	
									75	
									76	70' to 80' --> HQ core recovery = 48%, RQD = 25%
									77	
									78	
									79	
									80	
									81	Total Depth 80 feet
									82	
									83	
									84	
									85	
									86	
									87	
									88	
									89	
									90	

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Borehole MW-4

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/11/2011
Latitude: 36.72227°
Longitude: -107.78391°
Elevation: 5756
Boring Location: See Site Plan
Groundwater Depth: Approx. 111 ft during drilling
Logged By: DB
Remarks: 0' - 70' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SC		1	CLAYEY SAND, brown, fine-grained, moist
									2	
									3	
									4	SILTY SAND, tan, fine-grained, slightly damp
					SS 60				5	
									6	
									7	
									8	
									9	moderate carbonate cementation
					SS 60				10	white marbling (poorly developed caliche)
									11	
									12	
									13	
									14	
					SS 60				15	
									16	
									17	
									18	
									19	
					SS 60				20	
							SM		21	
									22	
									23	
									24	
					SS 60				25	
									26	
									27	
									28	
									29	
					SS 60				30	
									31	
									32	
									33	
									34	
					SS 60				35	
									36	
									37	
									38	
									39	
									40	

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Borehole MW-4

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/11/2011
Latitude: 36.72227°
Longitude: -107.78391°
Elevation: 5756
Boring Location: See Site Plan
Groundwater Depth: Approx. 111 ft during drilling
Logged By: DB
Remarks: 0' - 70' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60				41	SILTY SAND, tan, fine-grained, slightly damp
									42	
									43	
									44	
									45	
					SS 60				46	gray to brown
									47	damp
									48	
									49	
							SM		50	
					SS 60				51	
									52	
									53	
									54	
									55	
					SS 60				56	
									57	
									58	
									59	SHALE, gray to brown, highly weathered, soft, friable, damp
									60	
					SS 60				61	
									62	
									63	moderately weathered
									64	
									65	slightly weathered, moderately hard, blocky
					SS 60				66	purple-gray
									67	
									68	
									69	
							RK		70	
					HQ 36				71	auger refusal at 70 feet
									72	begin HQ rock coring
									73	70' to 73' --> HQ core recovery = 28%, RQD = 0%
					HQ 120				74	moderately weathered zone 73 to 80 feet
									75	soft, friable
									76	
									77	
									78	
									79	73' to 83' --> HQ core recovery = 40%, RQD = 18%
									80	

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Borehole MW-4

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/11/2011
Latitude: 36.72227°
Longitude: -107.78391°
Elevation: 5756
Boring Location: See Site Plan
Groundwater Depth: Approx. 111 ft during drilling
Logged By: DB
Remarks: 0' - 70' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					HQ 120		RK		81–85	SHALE, gray to brown, highly weathered, soft, friable, damp slightly weathered, moderately hard, massive
					HQ 120		RK		86–105	SILTSTONE, dark gray, fresh, hard, massive 83' to 93' --> HQ core recovery = 73%, RQD = 27% 93' to 103' --> HQ core recovery = 45%, RQD = 7%
					HQ 120		RK		106–111	SHALE, dark gray, fresh, hard, massive 103' to 113' --> HQ core recovery = 88%, RQD = 23%
					HQ 120		RK		112–120	SANDSTONE, green-gray, fine- to medium-grained, fresh, hard, strongly cemented groundwater encountered at 111 feet during drilling fine-grained medium-grained 113' to 123' --> HQ core recovery = 95%, RQD = 42%

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Borehole MW-4

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/11/2011
Latitude: 36.72227°
Longitude: -107.78391°
Elevation: 5756
Boring Location: See Site Plan
Groundwater Depth: Approx. 111 ft during drilling
Logged By: DB
Remarks: 0' - 70' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					HQ 120		RK		121–133	SANDSTONE, green-gray, fine- to medium-grained, fresh, hard, strongly cemented 123' to 133' --> HQ core recovery = 46%, RQD = 27%
									134	Total Depth 133 feet

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Borehole MW-5

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/9/2011
Latitude: 36.72709°
Longitude: -107.78810°
Elevation: 5776
Boring Location: See Site Plan
Groundwater Depth: Approx. 115 ft during drilling
Logged By: DB
Remarks: 0' - 57' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SC		1 2 3	CLAYEY SAND, brown, fine-grained, moist
					SS 60		SM		4 5 6 7 8 9 10 11	SILTY SAND, tan, fine-grained, slightly damp moderate carbonate cementation white marbling (poorly developed caliche)
					SS 60		SC		12 13 14	CLAYEY SAND with gravel, fine-grained, damp
					SS 60		RK		15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	SANDSTONE, gray, medium- to coarse-grained, slightly weathered, moderately hard, moderately cemented minor iron-staining 16' - 18' tan minor iron-staining 22' - 23' light gray, fresh fine-grained contains thin lenses of damp gray shale medium-grained, damp hard drilling highly weathered zone 35' - 36' fresh, medium-grained, strongly cemented

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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Borehole MW-5

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/9/2011
Latitude: 36.72709°
Longitude: -107.78810°
Elevation: 5776
Boring Location: See Site Plan
Groundwater Depth: Approx. 115 ft during drilling
Logged By: DB
Remarks: 0' - 57' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		RK		41	SANDSTONE, gray, medium- to coarse-grained, slightly weathered, moderately hard, moderately cemented
									42	
									43	contains occasional lenses of damp shale
									44	
									45	
					SS 60				46	
									47	
							RK		48	SHALE, gray, highly weathered, friable, damp to moist
									49	stopped drilling to check for moisture infiltration
									50	no free water in hole after sitting overnight
					SS 60				51	
									52	
									53	SILTSTONE, green-gray, fresh, hard, massive
									54	
									55	
					SS 24				56	
									57	
					HQ 84				58	auger refusal at 57 feet
									59	begin HQ rock coring
									60	
									61	
									62	57' to 64' --> HQ core recovery = 83%, RQD = 8%
									63	
									64	
					HQ 120		RK		65	
									66	
									67	
									68	
									69	
									70	64' to 74' --> HQ core recovery = 60%, RQD = 28%
									71	
									72	
									73	
									74	
					HQ 120				75	
									76	
									77	
									78	SHALE, green-gray, fresh, hard, massive
							RK		79	
									80	74' to 84' --> HQ core recovery = 60%, RQD = 18%

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Borehole MW-5

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	2/9/2011
Project Number:	102-1162	Latitude:	36.72709°
Client:	Cheney-Walters-Echols	Longitude:	-107.78810°
Site Location:	Blanco, New Mexico	Elevation:	5776
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8" O.D. HSA/HQ Core	Groundwater Depth:	Approx. 115 ft during drilling
Sampling Method:	4" continuous barrel/HQ core	Logged By:	DB
Hammer Weight:	N/A	Remarks:	0' - 57' sampled with 5' continuous sampler
Hammer Fall:	N/A		

Laboratory Results				Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)							
									81	SHALE, green-gray, fresh, hard, massive
									82	
									83	
									84	
					HQ 120				85	
									86	blue-gray
									87	
							RK		88	
									89	
									90	84' to 94' --> HQ core recovery = 40%, RQD = 23%
									91	
									92	contains lenses of siltstone
									93	
									94	
					HQ 120				95	
									96	SILTSTONE, green-gray to blue-gray, fresh, hard, massive
									97	
									98	
									99	
									100	94' to 104' --> HQ core recovery = 63%, RQD = 34%
									101	
									102	
							RK		103	
									104	
					HQ 120				105	
									106	
									107	
									108	highly weathered zone 108' - 110'
									109	104' to 114' --> HQ core recovery = 88%, RQD = 58%
									110	
									111	SANDSTONE, green-gray to blue-gray, fine-grained, fresh, hard, strongly cemented
									112	
									113	
									114	medium-grained
					HQ 120				115	▽
							RK		116	groundwater encountered at 115 feet during drilling
									117	
									118	
									119	
									120	114' to 124' --> HQ core recovery = 85%, RQD = 55%

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Borehole MW-5

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 2/9/2011
Latitude: 36.72709°
Longitude: -107.78810°
Elevation: 5776
Boring Location: See Site Plan
Groundwater Depth: Approx. 115 ft during drilling
Logged By: DB
Remarks: 0' - 57' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
							RK		121 122 123 124 125	SANDSTONE, green-gray to blue-gray, fine-grained, fresh, hard, strongly cemented
					HQ 120					
							RK		126 127 128 129 130 131 132 133 134 135 136	SILTSTONE, dark gray, fresh, hard, massive 124' to 134' --> HQ core recovery = 83%, RQD = 50% 134' to 136' --> HQ core recovery = 100%, RQD = 83%
					HQ 24					
									137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160	Total Depth 136 feet

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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Borehole MW-6

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	5/2/2011
Project Number:	102-1162	Latitude:	36.72192°
Client:	Cheney-Walters-Echols	Longitude:	-107.79240°
Site Location:	Blanco, New Mexico	Elevation:	5684
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8.25" O.D. Hollow Stem Auger	Groundwater Depth:	Approx. 38 ft during driling
Sampling Method:	4" continuous barrel	Logged By:	DB
Hammer Weight:	N/A	Remarks:	None
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60				1	SILTY SAND, brown, fine-grained, damp
									2	
									3	
									4	
					SS 60				5	
									6	
									7	
									8	
									9	
					SS 60		SM		10	
									11	color change to tan
									12	
									13	
									14	
					SS 60				15	calcareous stringers and nodules
									16	
									17	
									18	
									19	
					SS 60				20	
									21	SAND with trace gravel, tan, poorly graded, fine- to medium-grained, damp
									22	
									23	
									24	
					SS 60		SP		25	
									26	
									27	
									28	fine- to coarse-grained
									29	damp
									30	

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Farmington, NM 87401
Tel (505) 327-7928
Fax (505) 326-5721

Borehole MW-6

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8.25" O.D. Hollow Stem Auger
Sampling Method: 4" continuous barrel
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 5/2/2011
Latitude: 36.72192°
Longitude: -107.79240°
Elevation: 5684
Boring Location: See Site Plan
Groundwater Depth: Approx. 38 ft during driling
Logged By: DB
Remarks: None

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SP		31–36	SAND with trace gravel, tan, poorly graded, fine- to medium-grained, damp contains occasional clay nodules
					SS 60				36–37	
							RK		37–44	SANDSTONE, tan, highly weathered, fine- to coarse-grained, soft to moderately soft, wet green to gray, slightly weathered, hard Drilling halted at 40 foot depth to evaluate moist zone Let boring sit overnight to check for water infiltration Measured water level following morning @ 38.6 ft below ground surface Advanced boring to 51 feet and installed monitor well
					A				45–50	
					A				51	
									52–60	Total Depth 51 feet

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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GEOMAT 102-11(

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Borehole MW-7

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	5/4/2011
Project Number:	102-1162	Latitude:	36.72071°
Client:	Cheney-Walters-Echols	Longitude:	-107.78700°
Site Location:	Blanco, New Mexico	Elevation:	5710
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8.25" O.D. Hollow Stem Auger	Groundwater Depth:	Approx. 56 ft during drilling
Sampling Method:	4" continuous barrel	Logged By:	DB
Hammer Weight:	N/A	Remarks:	None
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60				1	SILTY SAND, brown, fine-grained, moist
									2	
									3	
									4	
									5	
					SS 60				6	
									7	tan, damp, moderate cementation
									8	
									9	
							SM		10	
					SS 60				11	
									12	
									13	calcareous stringers/nodules
									14	
									15	
					SS 60				16	
									17	
									18	
									19	
					SS 60				20	LEAN CLAY, tan, damp
									21	contains small roots
									22	
									23	
									24	
									25	
					SS 60		CL		26	
									27	hard drilling
									28	
									29	
									30	easier drilling
					SS 60				31	
									32	SILTY SAND, tan, fine-grained, damp
									33	
									34	
							SM		35	
					SS 60				36	
									37	
									38	SAND with trace gravel, tan, poorly graded, fine- to
							SP		39	medium-grained, damp
									40	

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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GEOMAT 102-116

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Borehole MW-7

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8.25" O.D. Hollow Stem Auger
Sampling Method: 4" continuous barrel
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 5/4/2011
Latitude: 36.72071°
Longitude: -107.78700°
Elevation: 5710
Boring Location: See Site Plan
Groundwater Depth: Approx. 56 ft during drilling
Logged By: DB
Remarks: None

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SP		41–50	SAND with trace gravel, tan, poorly graded, fine- to medium-grained, damp
					SS 60					
					SS 60					
							CL		54	LEAN CLAY, gray, moist
					SS 60		RK		55–56	SILTSTONE, tan, highly weathered, soft, wet
									59	color change to blue-gray
									60	slightly weathered, hard
									61	Halted drilling at 60 feet to evaluate wet zone
									62	Let boring sit overnight to allow infiltration of water
									63	Measured water level next morning @ 55.0 feet below ground surface
									65	Advanced boring to 70 feet and installed monitor well
							RK		66–70	SANDSTONE, green-gray, fine- to medium-grained, fresh, hard, wet
					A				71	Total Depth 70 feet

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Borehole MW-8

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	7/19/2011
Project Number:	102-1162	Latitude:	36.729750°
Client:	Cheney-Walters-Echols	Longitude:	-107.790940°
Site Location:	Blanco, New Mexico	Elevation:	5727
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8" O.D. HSA/HQ Core	Groundwater Depth:	Approx. 75 ft during drilling
Sampling Method:	4" continuous barrel/HQ core	Logged By:	DB
Hammer Weight:	N/A	Remarks:	0' - 75' sampled with 5' continuous sampler
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		CL		1–8	SANDY LEAN CLAY, brown, dry to damp
					SS 60		SM		9–12	SILTY SAND, brown, fine-grained, damp contains white calcareous stringers
					SS 60		SP		13–16	SAND, tan, poorly graded, fine- to medium-grained, damp
					SS 60		SM		17–22	SILTY SAND, tan, fine- to medium-grained, damp moderate calcareous cementation
					SS 60		SW		23–27	SAND, tan, well graded, fine- to coarse-grained, damp
					SS 60		SM		28–33	SILTY SAND, tan, fine-grained, damp moderate calcareous cementation weak cementation
					SS 60		SW		34–40	SAND, tan, well graded, fine- to coarse-grained, damp no cementation

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Borehole MW-8

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 7/19/2011
Latitude: 36.729750°
Longitude: -107.790940°
Elevation: 5727
Boring Location: See Site Plan
Groundwater Depth: Approx. 75 ft during drilling
Logged By: DB
Remarks: 0' - 75' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SW		41–47	SAND, tan, well graded, fine- to coarse-grained, damp no cementation
					SS 60		SP		48–50	SAND, tan, poorly graded, fine- to medium-grained, damp
					SS 60		SW		51–63	SAND with gravel, tan, well graded, fine- to coarse-grained, damp
					SS 60		GP		64–72	GRAVEL with sand and cobbles, tan to gray, fine- to coarse-grained, damp rough drilling (jumping, grinding) no sample
					HQ 84		RK		73–75	SANDSTONE, moderately to highly weathered, moderately hard, damp auger refusal on cobbles at 75 ft begin HQ rock coring
							RK		75–80	SHALE, blue-green, highly to moderately weathered, moderately soft to moderately hard, moist to wet below 75 ft

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Borehole MW-8

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8" O.D. HSA/HQ Core
Sampling Method: 4" continuous barrel/HQ core
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 7/19/2011
Latitude: 36.729750°
Longitude: -107.790940°
Elevation: 5727
Boring Location: See Site Plan
Groundwater Depth: Approx. 75 ft during drilling
Logged By: DB
Remarks: 0' - 75' sampled with 5' continuous sampler

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
							RK		81	
					HQ 36		RK		82	
									83	SANDSTONE, blue-green, medium-grained, slightly weathered, hard, wet 82' to 85' --> rec=50%, RQD=0
									84	
					HQ 84				85	SILTSTONE, blue-green, moderately weathered, soft to moderately soft, fissile, friable
									86	
									87	lost circulation at 85 - soft rock plugging core barrel
							RK		88	
									89	85' to 92'--> HQ core recovery=33%, RQD=0
									90	
									91	lost circulation at 90 ft
									92	
									93	Total Depth 92 feet
									94	
									95	
									96	
									97	
									98	
									99	
									100	
									101	
									102	
									103	
									104	
									105	
									106	
									107	
									108	
									109	
									110	
									111	
									112	
									113	
									114	
									115	
									116	
									117	
									118	
									119	
									120	

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Borehole MW-9

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	7/20/2011
Project Number:	102-1162	Latitude:	36.724520°
Client:	Cheney-Walters-Echols	Longitude:	-107.792420°
Site Location:	Blanco, New Mexico	Elevation:	5755
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8.25" O.D. Hollow Stem Auger	Groundwater Depth:	Approx. 76 ft during drilling
Sampling Method:	4" continuous barrel	Logged By:	DB
Hammer Weight:	N/A	Remarks:	None
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SM		1	SILTY SAND, brown, fine- to medium-grained, dry
									2	
									3	
									4	
									5	
					SS 60				6	
									7	moderate calcareous cementation
									8	
									9	
									10	
					SS 60				11	
									12	strong cementation
									13	
									14	
									15	
					SS 60				16	
									17	
							CL		18	SANDY LEAN CLAY, brown, damp
									19	
									20	contains white calcareous stringers
					SS 60				21	
									22	
							SP		23	SAND, tan, poorly graded, fine-grained, damp, no cementation
									24	
									25	
					SS 60				26	
									27	
							SM		28	SILTY SAND, tan, fine-grained, damp
									29	
									30	

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Borehole MW-9

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	7/20/2011
Project Number:	102-1162	Latitude:	36.724520°
Client:	Cheney-Walters-Echols	Longitude:	-107.792420°
Site Location:	Blanco, New Mexico	Elevation:	5755
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8.25" O.D. Hollow Stem Auger	Groundwater Depth:	Approx. 76 ft during drilling
Sampling Method:	4" continuous barrel	Logged By:	DB
Hammer Weight:	N/A	Remarks:	None
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SM		31	SILTY SAND, tan, fine-grained, damp
									32	
									33	
							SW		34	SAND, tan, well-graded, fine- to coarse-graded, damp
					SS 60				35	
									36	
									37	
							SP		38	SAND, tan, poorly graded, fine- to medium-grained, damp
									39	
					SS 60				40	
									41	
									42	
									43	
									44	
					SS 60				45	
							SM		46	SILTY SAND, brown, fine-grained, damp
									47	
									48	
									49	
					SS 60				50	
									51	
							GP		52	GRAVEL with sand and cobbles
									53	SILTSTONE, green-gray, highly weathered, soft, damp
									54	
									55	
					SS 60		RK		56	
									57	
									58	
									59	moderately weathered, moderately soft, damp
									60	

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Borehole MW-9

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8.25" O.D. Hollow Stem Auger
Sampling Method: 4" continuous barrel
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 7/20/2011
Latitude: 36.724520°
Longitude: -107.792420°
Elevation: 5755
Boring Location: See Site Plan
Groundwater Depth: Approx. 76 ft during drilling
Logged By: DB
Remarks: None

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
							RK		61	SILTSTONE, green-gray, highly weathered, soft, damp
									62	
									63	
							RK		64	SHALE, green-gray, slightly weathered, moderately hard, damp, fissile, friable
					SS 60				65	
									66	
							RK		67	SILTSTONE, green-gray, fresh, moderately hard, damp
									68	
									69	
					SS 60				70	
									71	
									72	weakly fissile
									73	
							RK		74	SHALE, dark gray, fresh, moderately hard, damp, blocky to weakly fissile
									75	
									76	▽
							RK		77	SILTSTONE, green-gray
									78	highly weathered, soft, wet between 76 and 78 ft
									79	
									80	fresh, hard, damp to moist below 78 ft
									81	
									82	
									83	
									84	
									85	
									86	
									87	
									88	Total Depth 87 feet
									89	
									90	

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GEOMAT 102-116

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Borehole MW-10

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	7/26/2011
Project Number:	102-1162	Latitude:	36.720440°
Client:	Cheney-Walters-Echols	Longitude:	-107.780040°
Site Location:	Blanco, New Mexico	Elevation:	5783
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8.25" O.D. Hollow Stem Auger	Groundwater Depth:	Approx. 101 ft during drilling
Sampling Method:	4" continuous barrel	Logged By:	DB
Hammer Weight:	N/A	Remarks:	None
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		SM		1–7	SILTY SAND, brown, fine-grained, dry to damp
					SS 60		SW		8–15	SAND, brown, well-graded, fine- to coarse-grained, damp
					SS 60		SM		16–21	SILTY SAND, brown, fine-grained, damp, weak to moderate calcareous cementation
					SS 60		SW		22–23	SAND, brown, well-graded, fine- to coarse-grained, damp
							SC		24–25	CLAYEY SAND, red-brown, fine-grained, damp
					SS 60		SM		26–40	SILTY SAND, tan, fine-grained, damp

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Borehole MW-10

Project Name: Crowe Blanco Properties, LLC
Project Number: 102-1162
Client: Cheney-Walters-Echols
Site Location: Blanco, New Mexico
Rig Type: CME - 75
Drilling Method: 8.25" O.D. Hollow Stem Auger
Sampling Method: 4" continuous barrel
Hammer Weight: N/A
Hammer Fall: N/A

Date Drilled: 7/26/2011
Latitude: 36.720440°
Longitude: -107.780040°
Elevation: 5783
Boring Location: See Site Plan
Groundwater Depth: Approx. 101 ft during drilling
Logged By: DB
Remarks: None

Laboratory Results: Dry Density (pcf)	% Passing #200 Sieve	Plasticity Index	Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60				41	SILTY SAND, tan, fine-grained, damp
									42	
									43	
									44	
					SS 60				45	
									46	
									47	
									48	contains layers/lenses of well graded sand
									49	
					SS 60				50	
									51	
									52	
									53	
							SM		54	
					SS 60				55	
									56	
									57	
									58	
									59	
					SS 60				60	
									61	
									62	
									63	
									64	
					SS 60				65	
									66	
									67	
							RK		68	SILTSTONE, green-gray, moderately weathered, moderately hard
									69	
									70	
					SS 60				71	SHALE, green-gray, moderately weathered, blocky
									72	
							RK		73	
									74	
									75	weakly fissile
					SS 60				76	
									77	SILTSTONE, green-gray, slightly weathered, moderately hard
							RK		78	
									79	
									80	

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Borehole MW-10

Project Name:	Crowe Blanco Properties, LLC	Date Drilled:	7/26/2011
Project Number:	102-1162	Latitude:	36.720440°
Client:	Cheney-Walters-Echols	Longitude:	-107.780040°
Site Location:	Blanco, New Mexico	Elevation:	5783
Rig Type:	CME - 75	Boring Location:	See Site Plan
Drilling Method:	8.25" O.D. Hollow Stem Auger	Groundwater Depth:	Approx. 101 ft during drilling
Sampling Method:	4" continuous barrel	Logged By:	DB
Hammer Weight:	N/A	Remarks:	None
Hammer Fall:	N/A		

Laboratory Results: Dry Density (pcf)	Laboratory Results: % Passing #200 Sieve	Laboratory Results: Plasticity Index	Laboratory Results: Moisture Content (%)	Blows per 6"	Sample Type & Length (in)	Recovery	USCS	Soil Symbol	Depth (ft)	Soil Description
					SS 60		RK		81	SILTSTONE, green-gray, slightly weathered, moderately hard
									82	
							RK		83	
									84	SHALE, green-gray
							RK		85	SANDSTONE, light gray, clayey, fine-grained, moderately to highly weathered, weakly cemented
					SS 60				86	
									87	SILTSTONE, green-gray, fresh, moderately hard to hard
									88	
									89	
					SS 60				90	
									91	hard drilling
									92	
									93	
									94	
					SS 60				95	
									96	
									97	
									98	
							RK		99	purple-gray, fresh, hard, fissile
					SS 60				100	
									101	▽green-gray
									102	
									103	between 101 and 103 ft - highly weathered, soft, wet
									104	
					SS 60				105	purple-gray, fresh, hard, damp, fissile
									106	
									107	
									108	gray, damp
									109	
									110	
									111	
									112	Total Depth 111 feet
									113	
									114	
									115	
									116	
									117	
									118	
									119	
									120	

A = Auger Cuttings GRAB = Hand Sample MC = Modified California (Ring Sample) SS = Split Spoon HQ = 2.5" Rock Core

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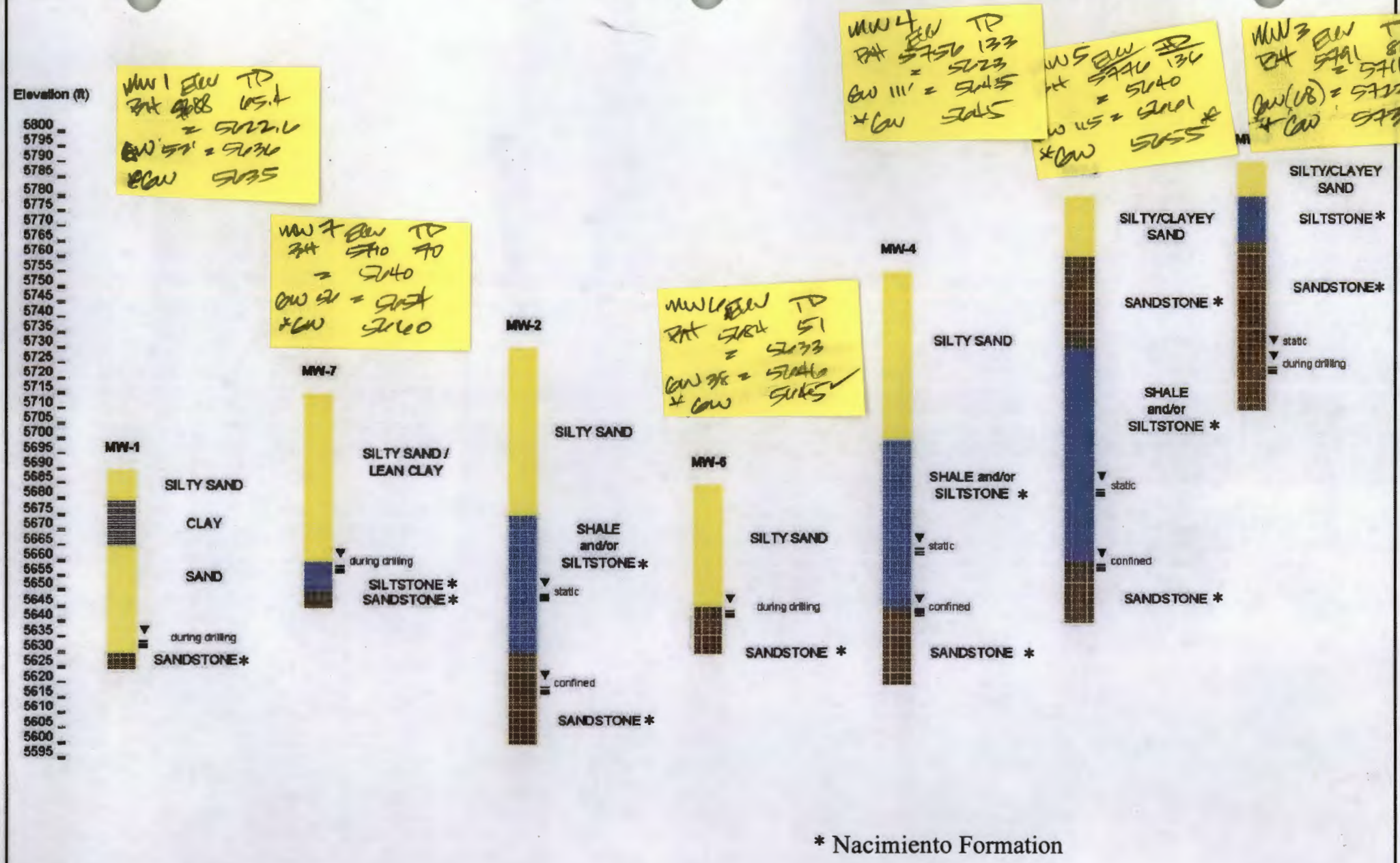
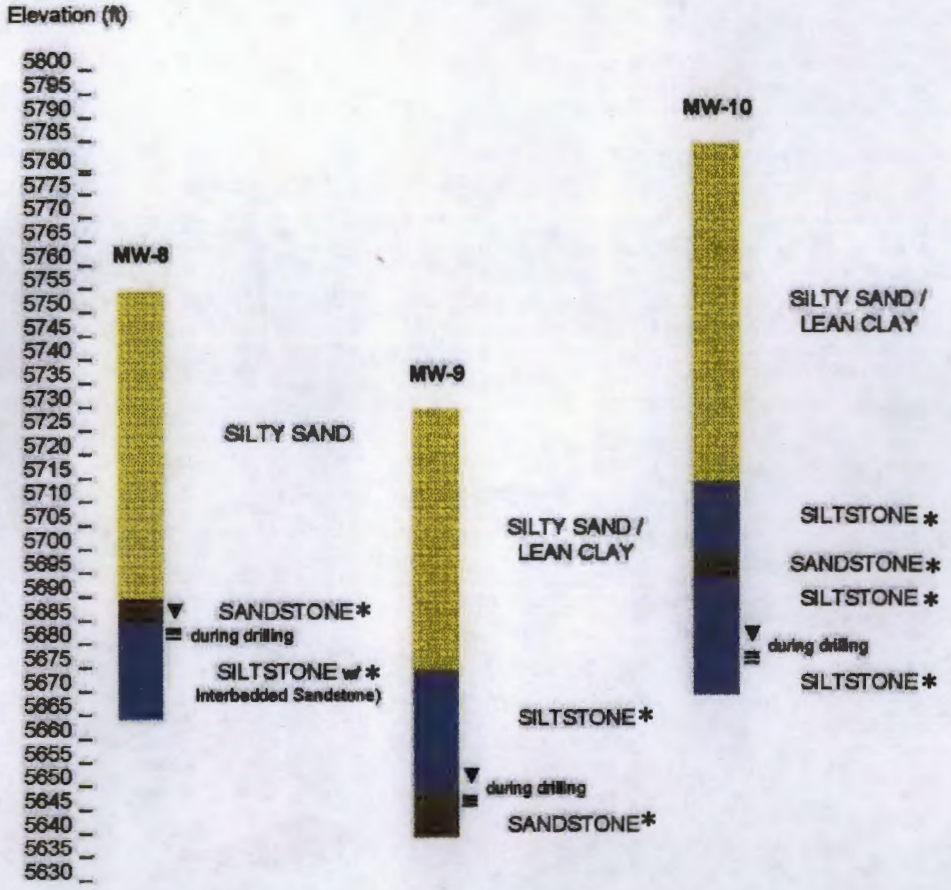


* Nacimiento Formation

REVISED: 8/26/11

	Lithologic Fence Diagram	PROJECT
	GEOMAT Project No. 102-1162	Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico
Not to Scale		GEOMAT INC

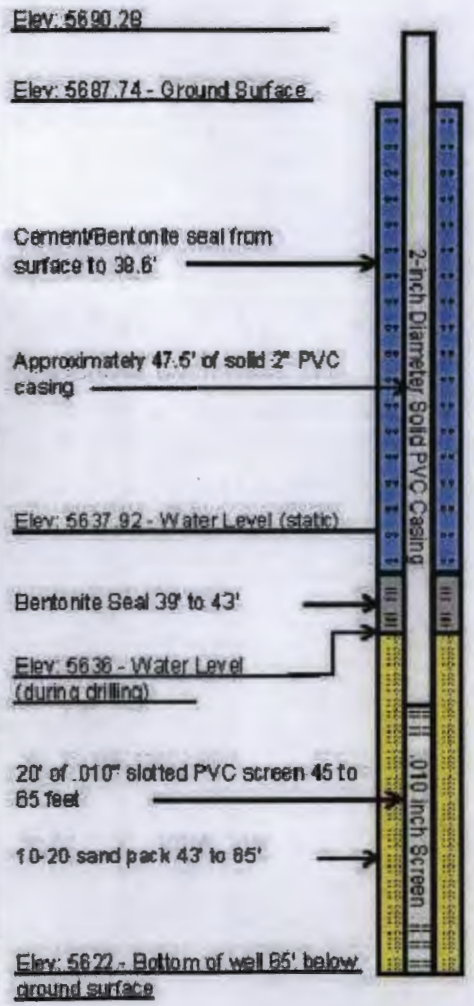


* Nacimiento Formation

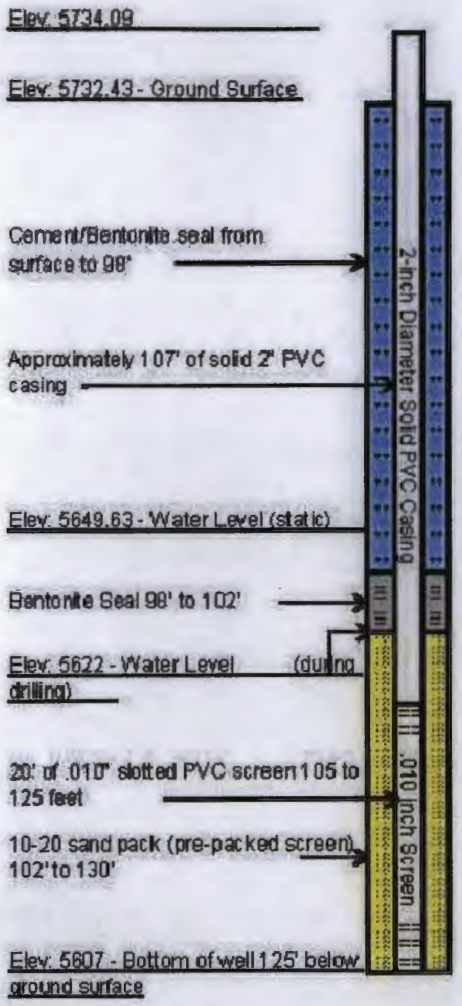
REVISED: 8/26/11

		PROJECT
	Lithologic Fence Diagram	Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico
Not to Scale	GEOMAT Project No. 102-1162	GEOMAT INC

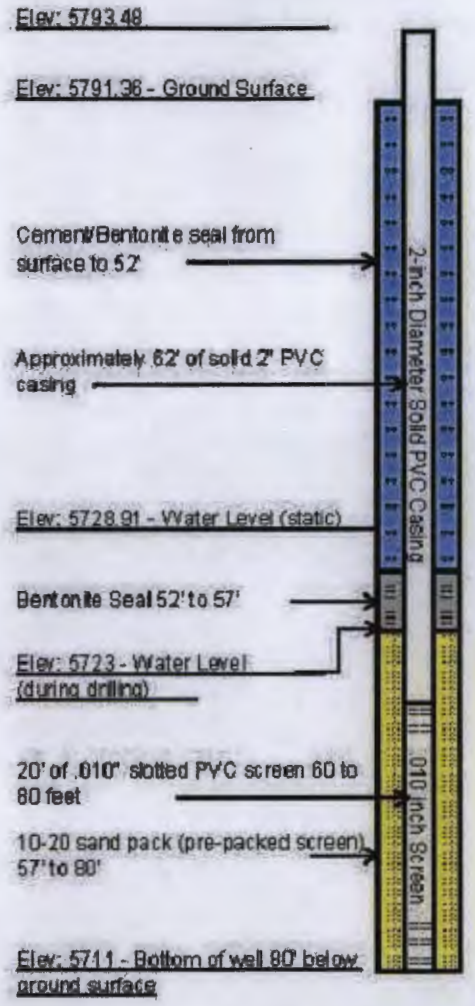
MONITOR WELL MW-1



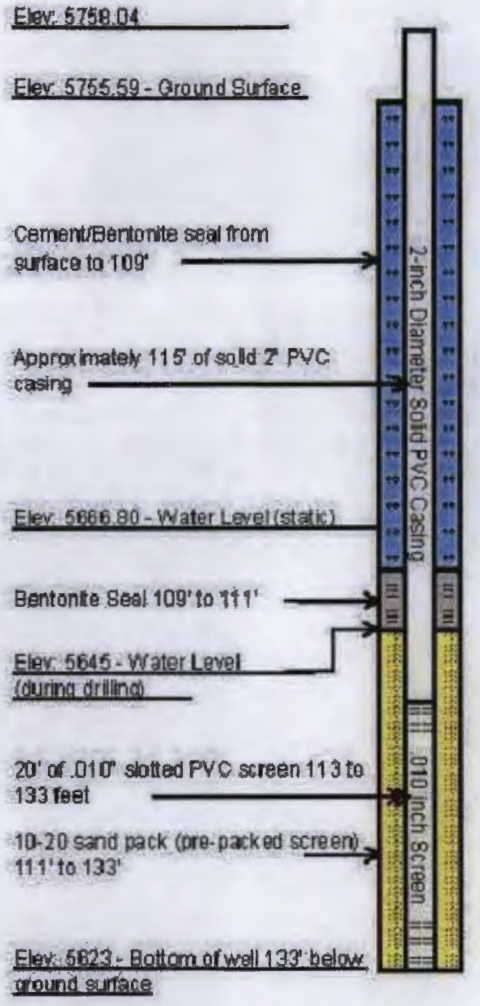
MONITOR WELL MW-2



MONITOR WELL MW-3

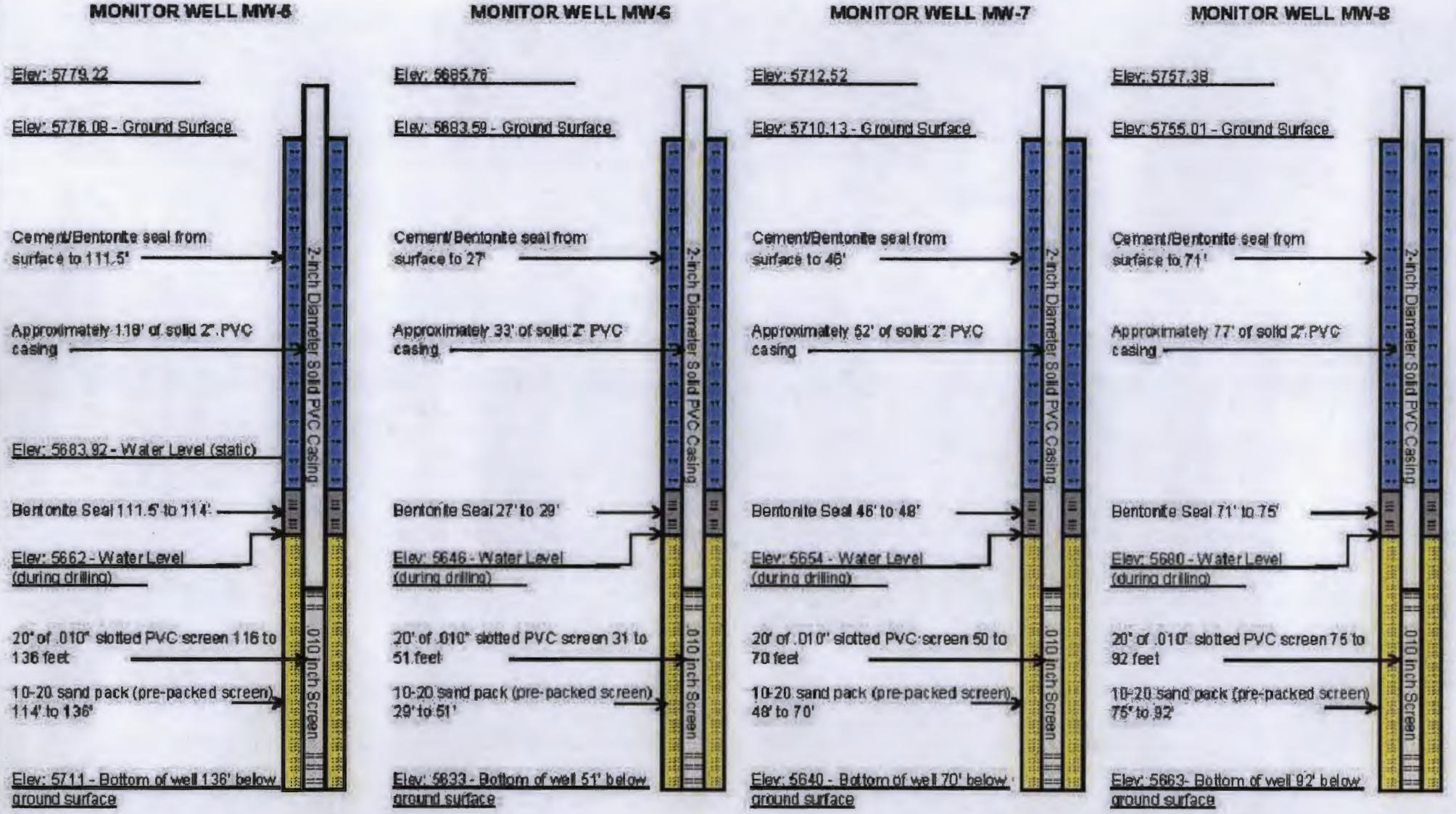


MONITOR WELL MW-4



REVISED: 8/26/11

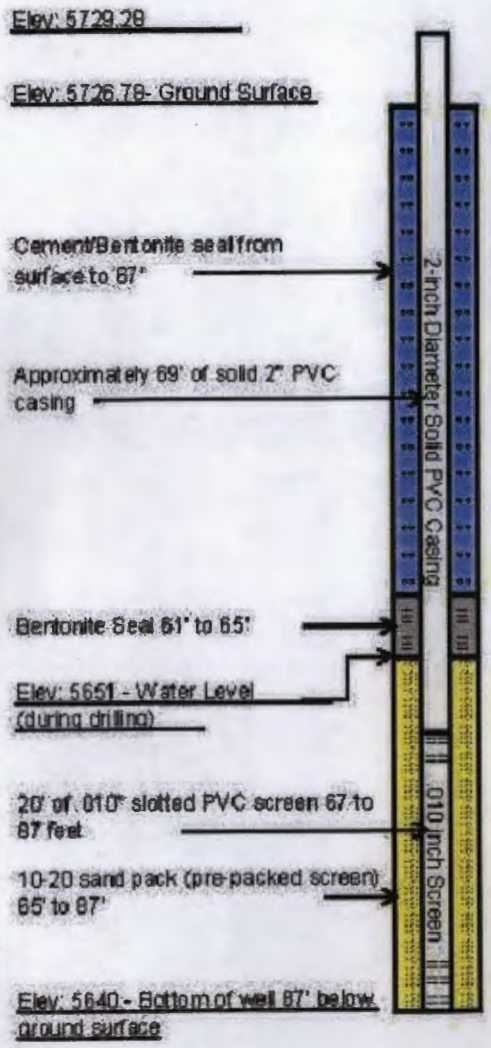
	Monitor Well As-Completed Cross-Sections	PROJECT: Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico
Not to Scale	GEOMAT Project No. 102-1162	GEOMAT INC



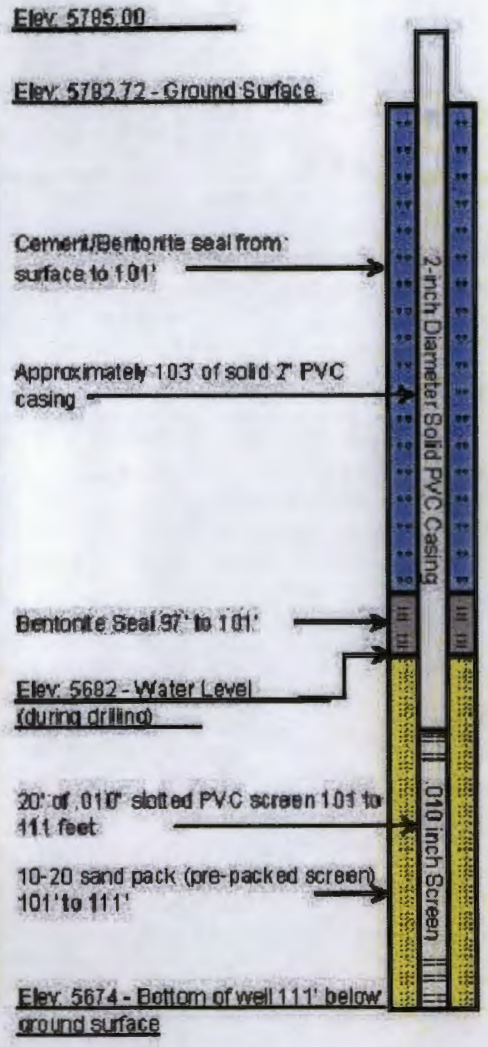
REVISED: 8/26/11

	PROJECT	
Not to Scale	Monitor Well As-Completed Cross-Sections	Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico
	GEOMAT Project No. 102-1162	GEOMAT INC

MONITOR WELL MW-9

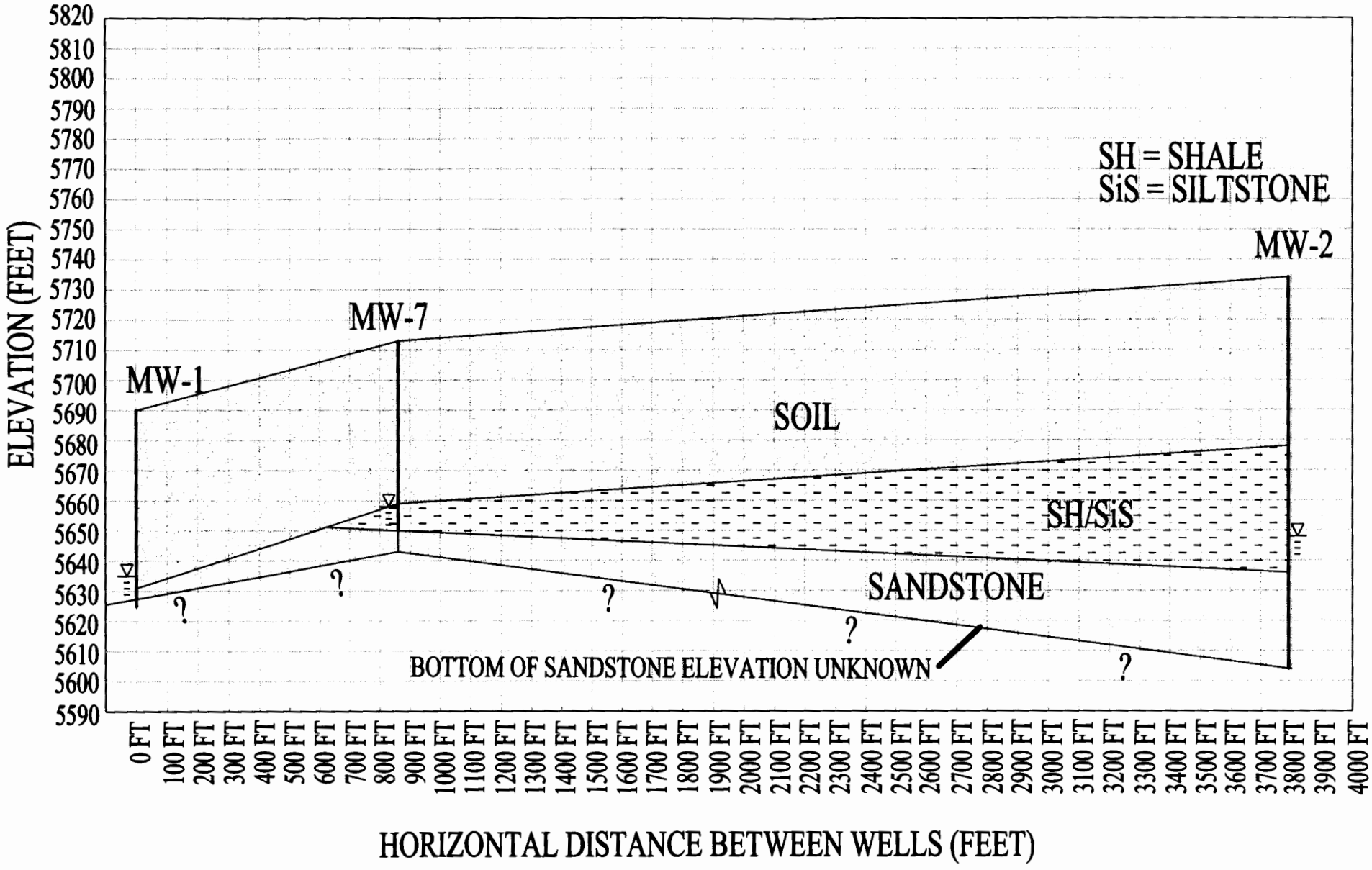


MONITOR WELL MW-10



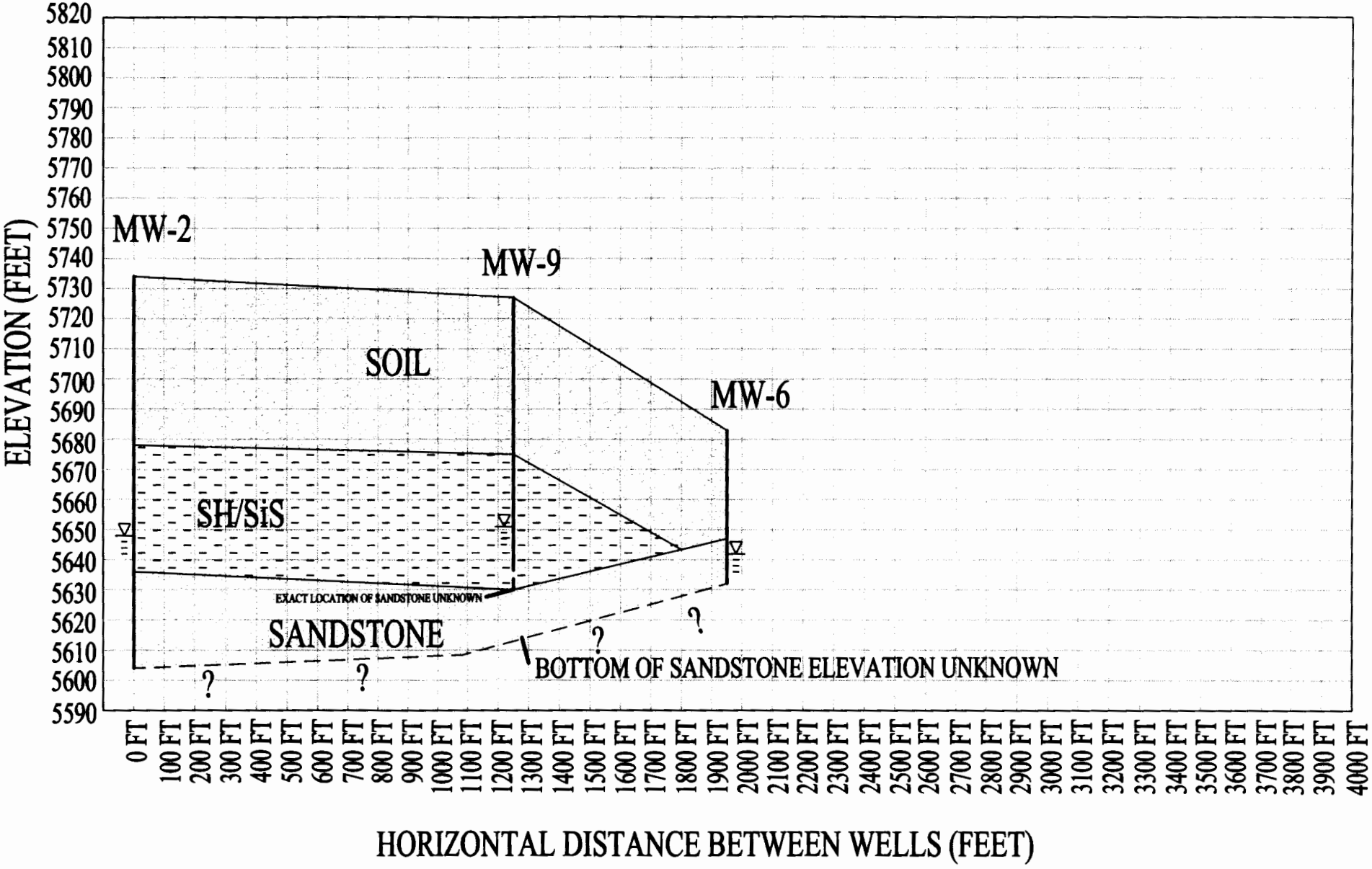
REVISED: 8/26/11

		PROJECT
	Monitor Well As-Completed Cross-Sections	Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico
Not to Scale	GEOMAT Project No. 102-1162	GEOMAT INC



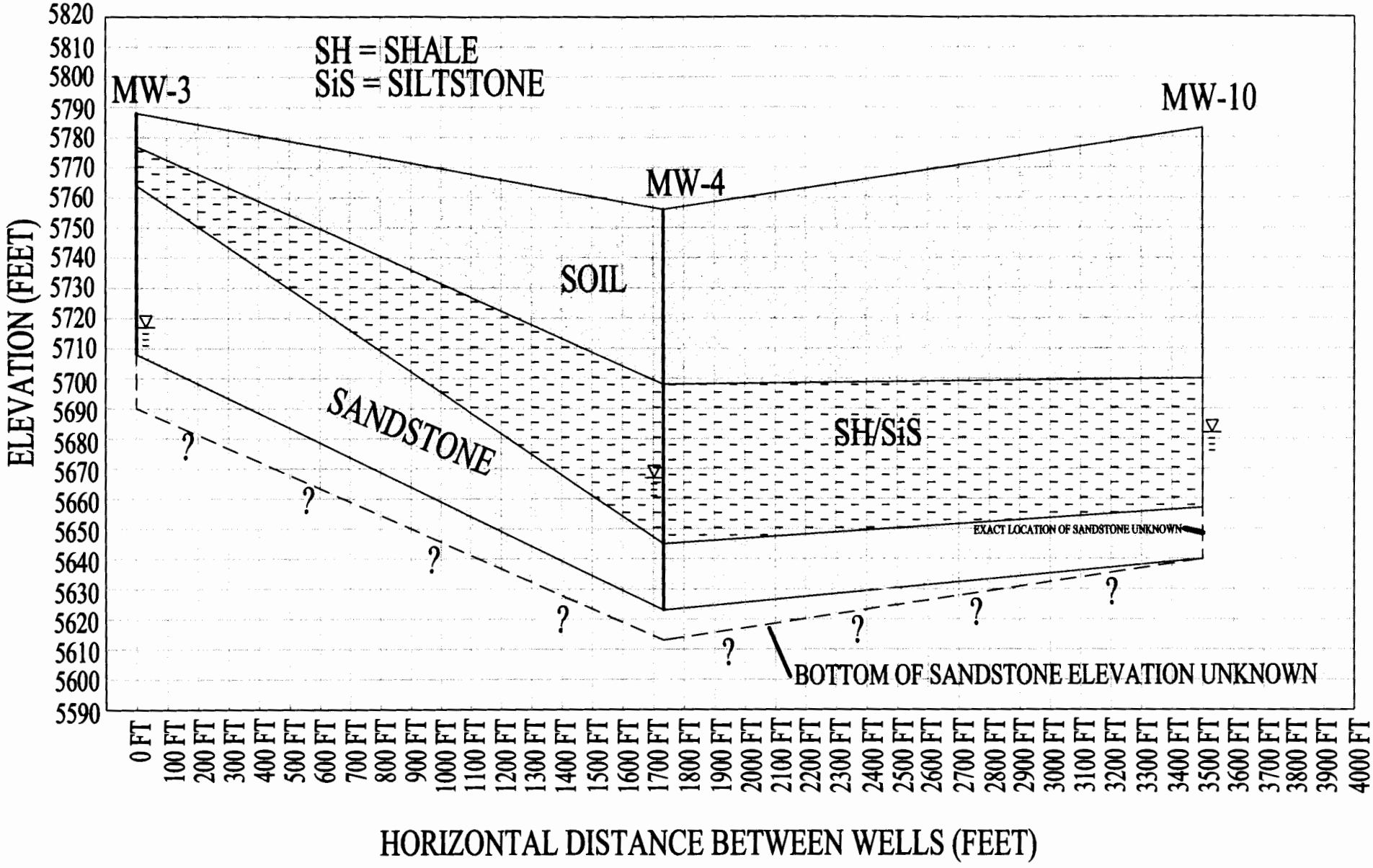
REVISED: 5/10/11

	INFORMATION	PROJECT	
	MW-1 to MW-7 to MW-2	Crowe Blanco Properties, LLC-Operated by IEI Generalized Geologic Cross Sections Blanco, New Mexico	GEOMAT INC
Not to Scale	GEOMAT Project No. 102-1162		



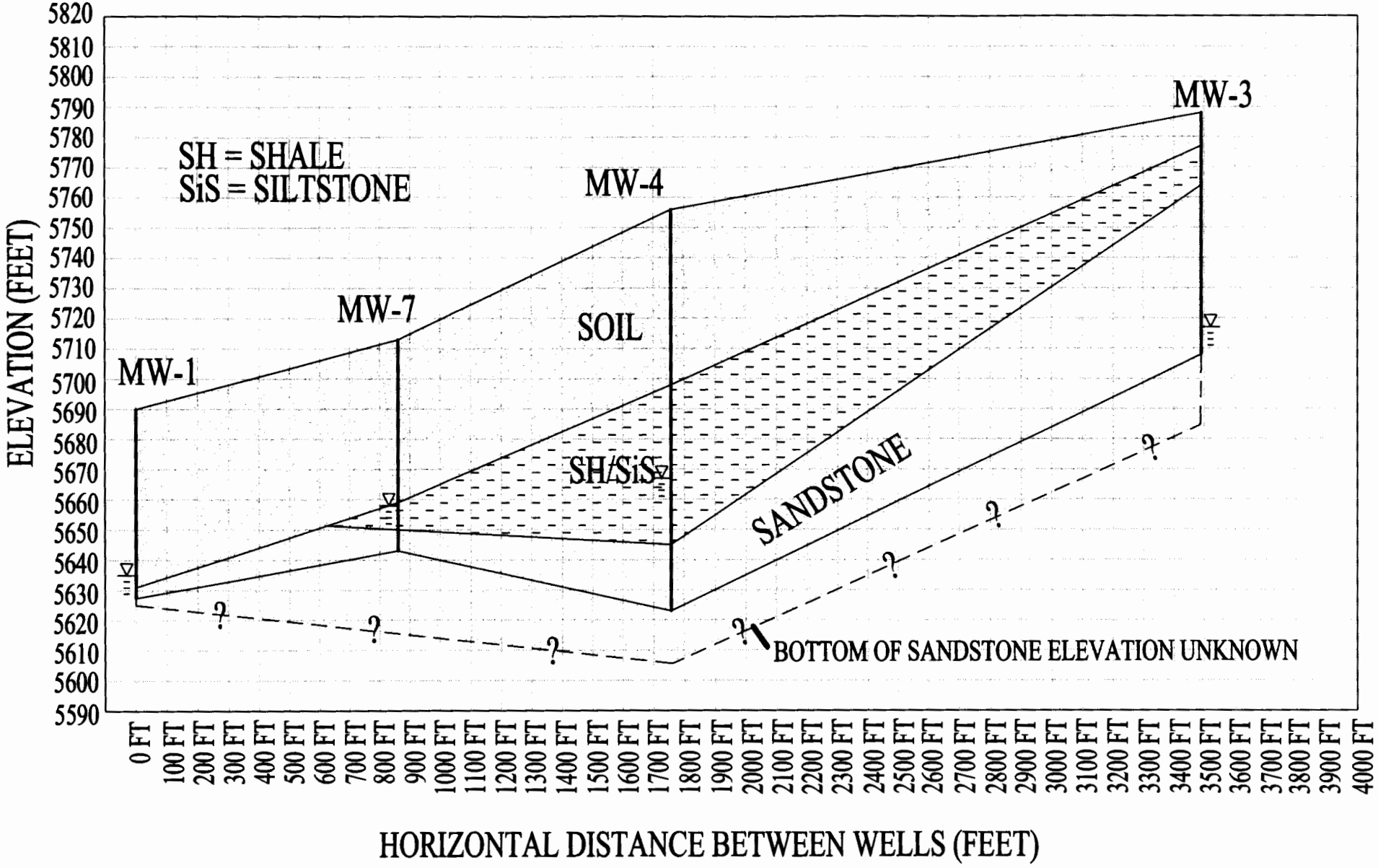
REVISED: 8/26/11

	INFORMATION	PROJECT	
	MW-2 to MW-9 to MW-6	Crowe Blanco Properties, LLC-Operated by IEI Generalized Geologic Cross Sections Blanco, New Mexico	GEOMAT INC
Not to Scale	GEOMAT Project No. 102-1162		



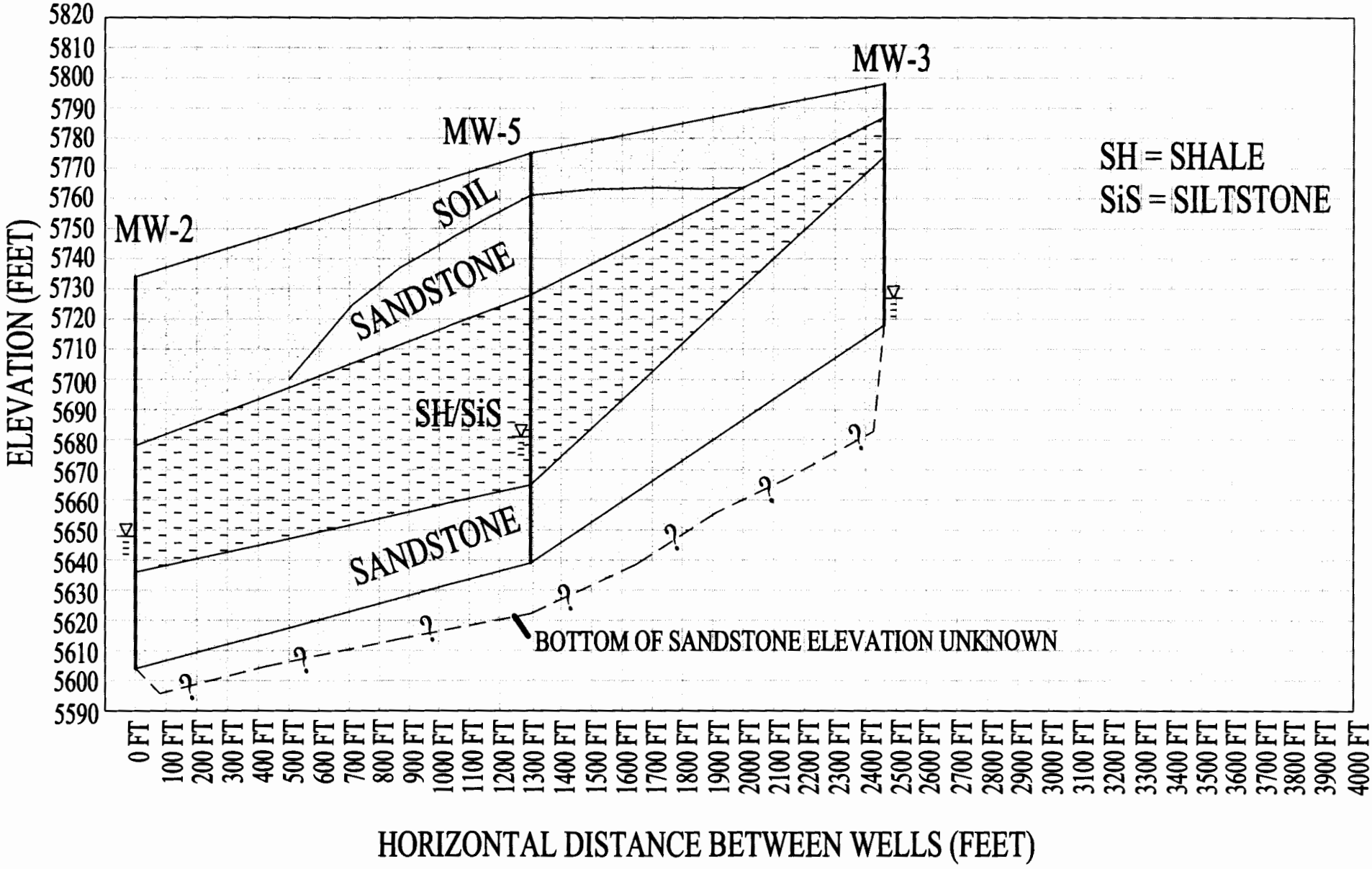
REVISED: 8/26/11

	INFORMATION	PROJECT	
	MW-3 to MW-4 to MW-10	Crowe Blanco Properties, LLC-Operated by IEI Generalized Geologic Cross Sections Blanco, New Mexico	GEOMAT INC
Not to Scale	GEOMAT Project No. 102-1162		



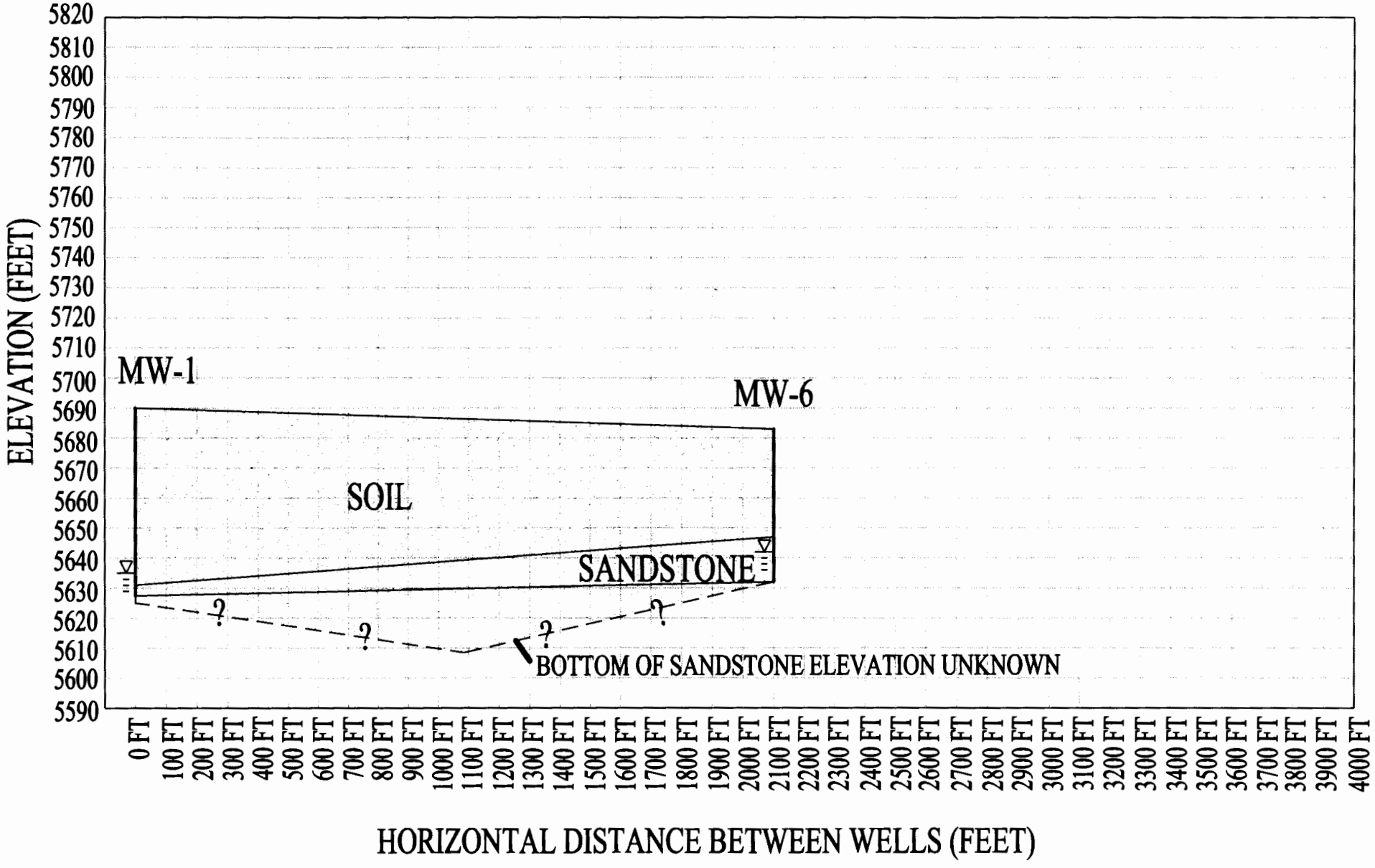
REVISED: 5/10/11

	INFORMATION	PROJECT	
Not to Scale	MW-1 to to MW-7 to MW-4 to MW-3	Crowe Blanco Properties, LLC-Operated by IEI	GEOMAT INC
	GEOMAT Project No. 102-1162	Generalized Geologic Cross Sections Blanco, New Mexico	



REVISED: 5/10/11

	INFORMATION	PROJECT	
	MW-2 to MW-5 to MW-3	Crowe Blanco Properties, LLC-Operated by IEI Generalized Geologic Cross Sections Blanco, New Mexico	GEOMAT INC
Not to Scale	GEOMAT Project No. 102-1162		



REVISED: 5/10/11

	INFORMATION	PROJECT	
	MW-1 to MW-6	Crowe Blanco Properties, LLC-Operated by IEI Generalized Geologic Cross Sections Blanco, New Mexico	GEOMAT INC
Not to Scale	GEOMAT Project No. 102-1162		

WATER LEVEL MEASUREMENTS

UNCONFINED CONDITION

WELL No.	TOC (ASL)[1]	TOP OF PAD (ASL)[1]	NATURAL GROUND SURFACE[2]	CASING STICKUP (feet)	DISTURBANCE of NATURAL GROUND ELEV	WL below TOC (measured)	WL below Pad (feet)[3]	WL Below Natural GS (feet)[4]	Water ELEV (ASL)[5] UNCONFINED
MW-1	5690.28	5687.74	5687.74	2.54	None	52.32	49.78	49.87	5637.96
MW-2	5734.09	5732.43	5732.43	1.66	None	84.37	82.71	82.71	5649.72
MW-3	5793.48	5791.36	5791.36	2.12	None	64.76	62.64	62.64	5728.72
MW-4	5758.04	5755.59	5755.59	2.45	None	91.10	88.65	88.65	5666.94
MW-5	5779.22	5777.08	5776.08	2.14	+1 ft of fill	95.40	93.26	92.26	5683.82
MW-6	5685.76	5683.59	5683.59	2.17	None	40.10	37.93	37.93	5645.66
MW-7	5712.52	5710.13	5710.13	2.39	None	58.39	56.00	56.00	5654.13
MW-8	5757.38	5755.01	5755.01	2.37	None	76.48	74.11	74.11	5680.90
MW-9	5729.28	5726.78	5726.78	2.50	None	89.55	87.05	87.05	N/A[6]
MW-10	5785.00	5782.72	5782.72	2.28	None	112.00	109.72	109.72	N/A[6]

CONFINED CONDITION

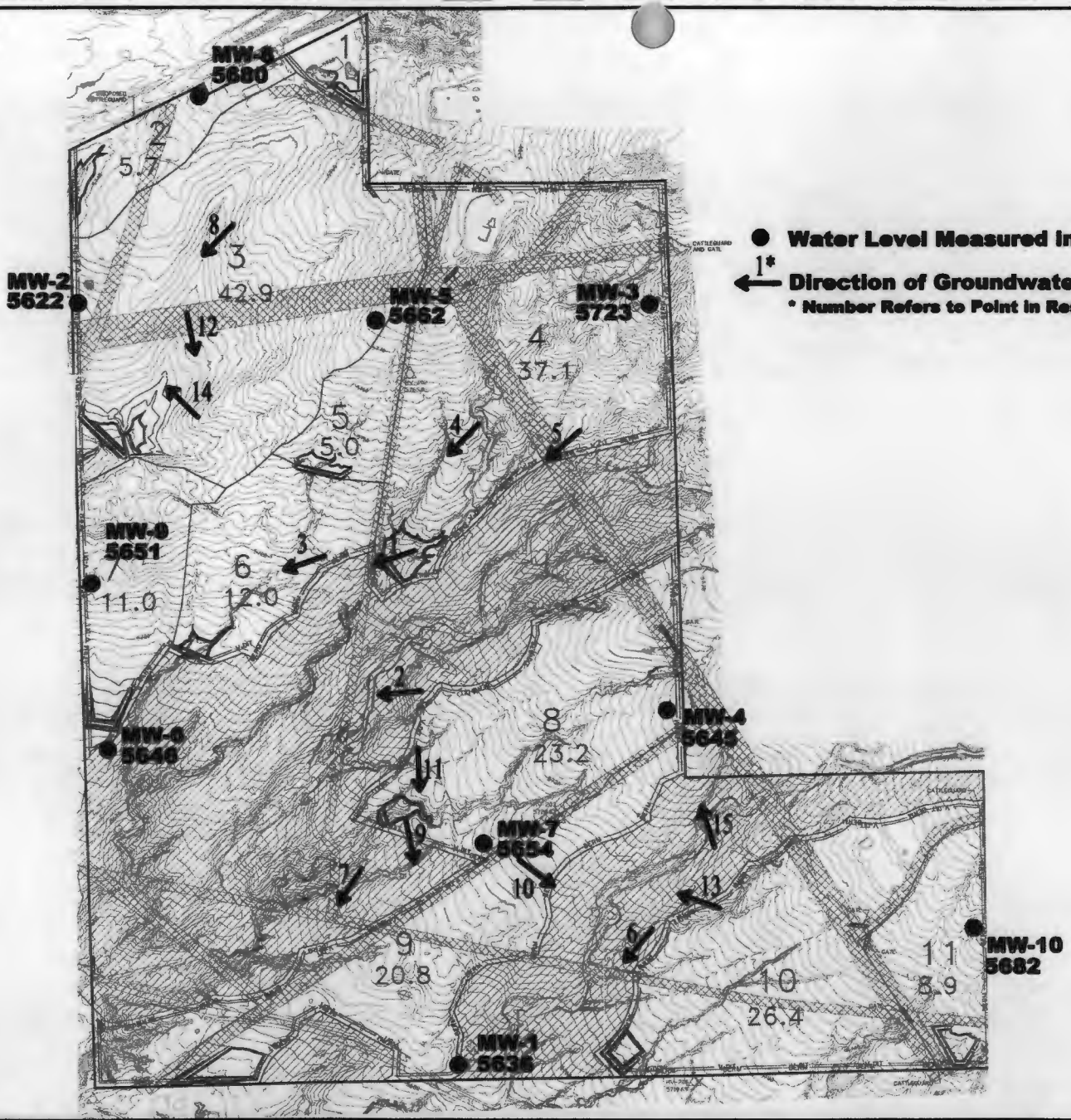
WELL No. No.	TOC (ASL)[1]	TOP OF PAD (ASL)[1]	NATURAL GROUND SURFACE[2]	CASING STICKUP (feet)	DISTURBANCE of NATURAL GROUND ELEV	Approx. WL Observed during Drilling[7]	Water ELEL (ASL) CONFINED[8]	WATER LEVEL UNCONFINED vs. CONFINED
MW-1	5690.28	5687.74	5687.74	2.54	None	52	5636	<2
MW-2	5734.09	5732.43	5732.43	1.66	None	110	5622	+28
MW-3	5793.48	5791.36	5791.36	2.12	None	68	5723	+6
MW-4	5758.04	5755.59	5755.59	2.45	None	111	5645	+22
MW-5	5779.22	5777.08	5776.08	2.14	+1 ft of fill	115	5662	+22
MW-6	5685.76	5683.59	5683.59	2.17	None	38	5646	<1
MW-7	5712.52	5710.13	5710.13	2.39	None	56	5654	<1
MW-8	5757.38	5755.01	5755.01	2.37	None	75	5680	<1
MW-9	5729.28	5726.78	5726.78	2.50	None	76	5651	N/A[6]
MW-10	5785.00	5782.72	5782.72	2.28	None	101	5682	N/A[6]

[1]Elevations (in feet above sea level) surveyed by Cheney-Walters-Echols, Inc.
[2]Top of concrete pad minus ground disturbance
[3]Measured water level (referenced to TOC) minus stickup
[4]Water level (below concrete pad) minus ground disturbance
[5]Surveyed top of pad elevation minus water level below pad
[6]Unable to determine static (unconfined) water level due to slow recharge rate
[7]Approximate depth at which groundwater was first encountered at time of drilling (confined water level)
[8]Surveyed top of pad elevation minus water level observed during drilling

Results of Three Point Analyses			
Map Point[1]	Wells Analyzed MW- #	Flow Direction[2] (confined)	Gradient[3] (confined)
1	1,2,3	S 70 W	2.5°
2	1,2,4	S 85 W	0.6°
3	1,2,5	S 71 W	1.9°
4	2,3,4	S 44 W	3.5°
5	3,4,5	S 48 W	3.6°
6	1,7,10	S 40 W	1.3°
7	1,6,7	S 32 W	1.4°
8	2,5,8	S 36 W	3.5°
9	1,4,6	S 10 E	0.4°
10	1,4,7	S 52 E	2.1°
11	4,6,7	S 02 E	1.1°
12	5,8,9	S 12 E	0.9°
13	1,4,10	N 70 W	1.7°
14	2,5,9	N 46 W	2.3°
15	4,7,10	N 19 W	2.1°

[1]Corresponding point on **Groundwater Elevations and Direction of Flow Map**

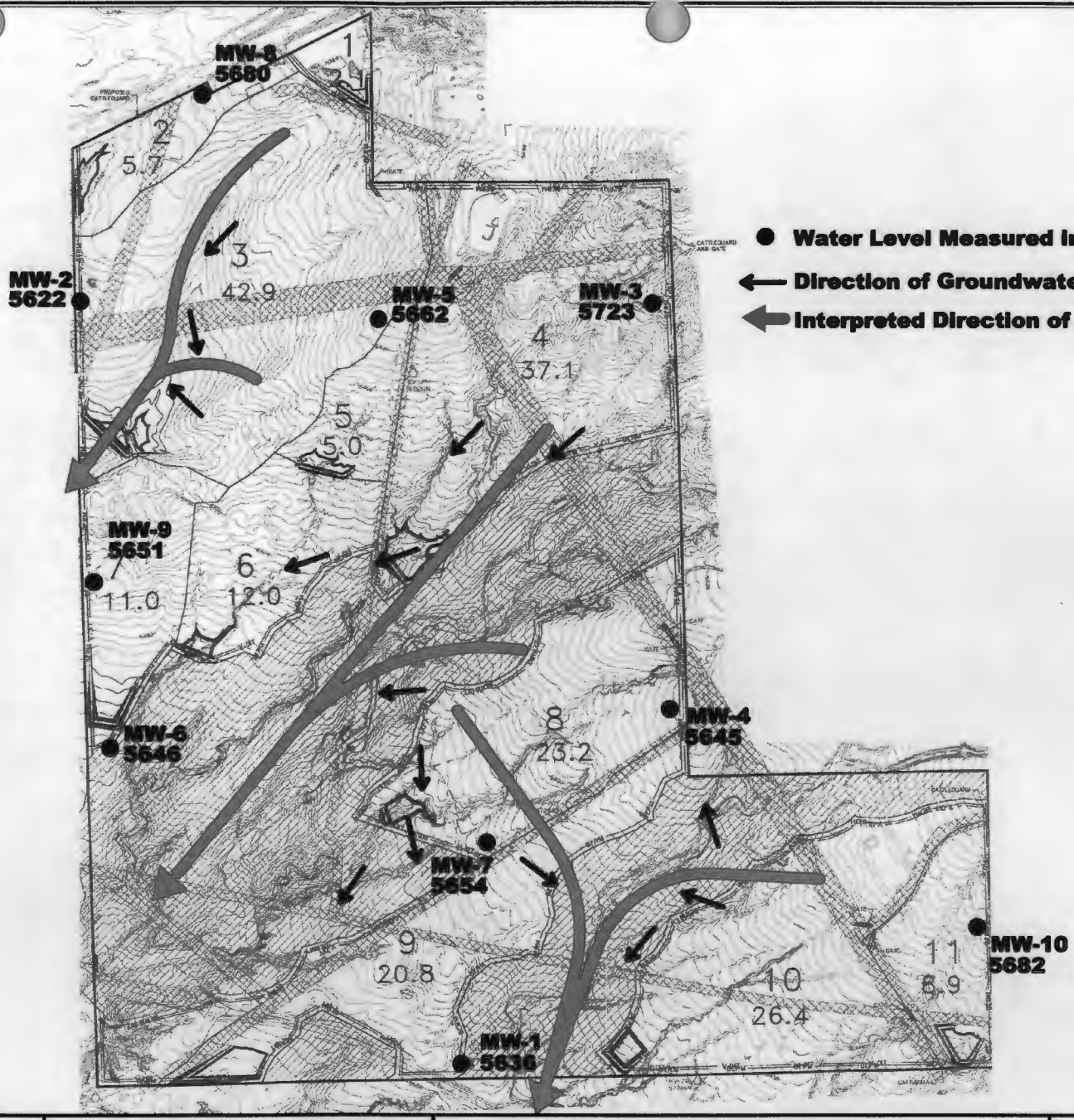
[2,3]Flow directions and gradient represent the confined (naturally occurring) condition



REVISED: 8/26/11

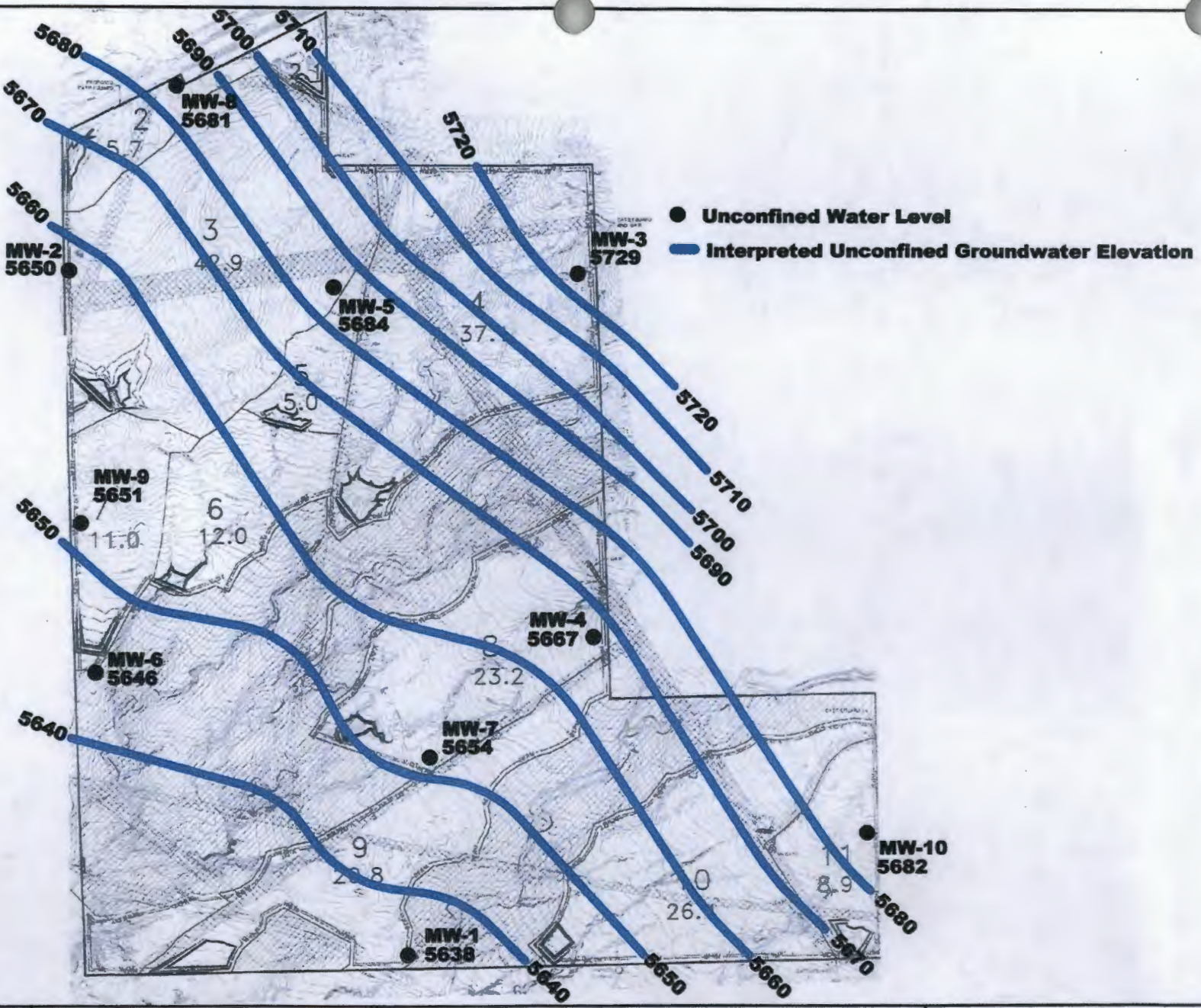
Approximate Not to Scale	GROUNDWATER ELEVATIONS AND DIRECTION OF FLOW MAP Confined Conditions GEOMAT Project No. 102-1162	PROJECT Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico

GEOMAT INC



Approximate Not to Scale	INTERPRETATION OF FLOW MAP Confined Conditions GEOMAT Project No. 102-1162	PROJECT Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico

GEOMAT INC



Approximate Not to Scale	INTERPRETATION OF GROUNDWATER ELEVATION Unconfined Conditions GEOMAT Project No. 102-1162	PROJECT Crowe Blanco Properties, LLC Operated by IEI Blanco, New Mexico	GEOMAT INC

Green Analytical Laboratories

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13 September 2011

Marcella Marquez
Industrial Ecosystems Inc.
49 CR 3150
Aztec, NM 87410
RE: MW6

Enclosed are the results of analyses for samples received by the laboratory on 08/31/11 14:55. The data to follow was performed, in whole or in part, by a subcontract laboratory with an additional report attached.

If you any any further assistance, please feel free to contact me.

Sincerely,

Debbie Zufelt

Debbie Zufelt
Reports Manager

Green Analytical Laboratories

dzufelt@greenanalytical.com p: 970.247.4220 f: 970 247 4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW6	1109002-01	Water	08/31/11 09:30	08/31/11 14:55

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

MW6

1109002-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry								
Alkalinity, Bicarbonate	**138**	10.0	mg/L	1	09/01/11	2320 B		ABP
Alkalinity, Carbonate	ND	10.0	mg/L	1	09/01/11	2320 B		ABP
Alkalinity, Hydroxide	ND	10.0	mg/L	1	09/01/11	2320 B		ABP
Alkalinity, Total	**138**	10.0	mg/L	1	09/01/11	2320 B		ABP
Chloride	**26.0**	10.0	mg/L	1	09/01/11	4500Cl B		ABP
TDS	**5120**	10.0	mg/L	1	09/01/11	160.1/2540C		ABP
Sulfate	**3700**	1000	mg/L	1	09/02/11	4500SO4		ABP
Dissolved Metals by ICP								
Arsenic	ND	0.100	mg/L	1	09/07/11	200.7		JGS
Barium	ND	0.010	mg/L	1	09/07/11	200.7		JGS
Cadmium	ND	0.050	mg/L	1	09/07/11	200.7		JGS
Calcium	**67.3**	1.00	mg/L	1	09/07/11	200.7		JGS
Chromium	ND	0.050	mg/L	1	09/07/11	200.7		JGS
Iron	**1.17**	0.050	mg/L	1	09/07/11	200.7		JGS
Lead	ND	0.100	mg/L	1	09/07/11	200.7		JGS
Magnesium	**7.69**	1.00	mg/L	1	09/07/11	200.7		JGS
Potassium	**3.81**	1.00	mg/L	1	09/07/11	200.7		JGS
Selenium	ND	0.200	mg/L	1	09/07/11	200.7		JGS
Silver	ND	0.050	mg/L	1	09/07/11	200.7		JGS
Sodium	**1580**	1.00	mg/L	1	09/07/11	200.7		JGS
Dissolved Mercury								
Mercury	ND	0.0002	mg/L	1	09/12/11	245.1		JGS

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www.GreenAnalytical.com

Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B109007 - General Prep - Wet Chem										
Blank (B109007-BLK1)				Prepared & Analyzed: 09/01/11						
Chloride	ND	10.0	mg/L							
LCS (B109007-BS1)				Prepared & Analyzed: 09/01/11						
Chloride	98.0	10.0	mg/L	100		98.0	85-115			
LCS Dup (B109007-BSD1)				Prepared & Analyzed: 09/01/11						
Chloride	98.0	10.0	mg/L	100		98.0	85-115	0.00	20	
Batch B109008 - General Prep - Wet Chem										
Blank (B109008-BLK1)				Prepared & Analyzed: 09/02/11						
Sulfate	ND	10.0	mg/L							
LCS (B109008-BS1)				Prepared & Analyzed: 09/02/11						
Sulfate	55.0	10.0	mg/L	50.0		110	80-120			
LCS Dup (B109008-BSD1)				Prepared & Analyzed: 09/02/11						
Sulfate	55.0	10.0	mg/L	50.0		110	80-120	0.00	20	
Batch B109011 - General Prep - Wet Chem										
Blank (B109011-BLK1)				Prepared & Analyzed: 09/01/11						
Alkalinity, Total	ND	10.0	mg/L							
LCS (B109011-BS1)				Prepared & Analyzed: 09/01/11						
Alkalinity, Total	102	10.0	mg/L	100		102	85-115			

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Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B109011 - General Prep - Wet Chem										
LCS Dup (B109011-BSD1)				Prepared & Analyzed: 09/01/11						
Alkalinity, Total	103	10.0	mg/L	100		103	85-115	0.976	20	
Batch B109018 - General Prep - Wet Chem										
Blank (B109018-BLK1)				Prepared & Analyzed: 09/01/11						
TDS	ND	10.0	mg/L							
Duplicate (B109018-DUP1)	**Source: 1108159-01**			Prepared & Analyzed: 09/01/11						
TDS	1010	10.0	mg/L		1010			0.00	20	
Reference (B109018-SRM1)				Prepared & Analyzed: 09/01/11						
TDS	3500	10.0	mg/L	3510		99.6	85-115			

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Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B109032 - Dissolved Metals										
Blank (B109032-BLK1)				Prepared & Analyzed: 09/07/11						
Arsenic	ND	0.100	mg/L							
Barium	ND	0.010	mg/L							
Cadmium	ND	0.050	mg/L							
Calcium	ND	1.00	mg/L							
Chromium	ND	0.050	mg/L							
Iron	ND	0.050	mg/L							
Lead	ND	0.100	mg/L							
Magnesium	ND	1.00	mg/L							
Potassium	ND	1.00	mg/L							
Selenium	ND	0.200	mg/L							
Silver	ND	0.050	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B109032-BS1)				Prepared & Analyzed: 09/07/11						
Arsenic	5.32	0.100	mg/L	5.00		106	85-115			
Barium	2.62	0.010	mg/L	2.50		105	85-115			
Cadmium	2.73	0.050	mg/L	2.50		109	85-115			
Calcium	5.15	1.00	mg/L	5.00		103	85-115			
Chromium	2.70	0.050	mg/L	2.50		108	85-115			
Iron	5.38	0.050	mg/L	5.00		108	85-115			
Lead	2.74	0.100	mg/L	2.50		110	85-115			
Magnesium	27.6	1.00	mg/L	25.0		110	85-115			
Potassium	10.8	1.00	mg/L	10.0		108	85-115			
Selenium	10.7	0.200	mg/L	10.0		107	85-115			
Silver	0.128	0.050	mg/L	0.125		102	85-115			
Sodium	8.63	1.00	mg/L	8.10		106	85-115			
LCS Dup (B109032-BSD1)				Prepared & Analyzed: 09/07/11						
Arsenic	5.32	0.100	mg/L	5.00		106	85-115	0.0250	20	
Barium	2.63	0.010	mg/L	2.50		105	85-115	0.359	20	
Cadmium	2.76	0.050	mg/L	2.50		110	85-115	0.925	20	
Calcium	5.20	1.00	mg/L	5.00		104	85-115	0.974	20	
Chromium	2.72	0.050	mg/L	2.50		109	85-115	0.488	20	
Iron	5.44	0.050	mg/L	5.00		109	85-115	1.23	20	
Lead	2.78	0.100	mg/L	2.50		111	85-115	1.22	20	
Magnesium	27.8	1.00	mg/L	25.0		111	85-115	0.988	20	
Potassium	11.1	1.00	mg/L	10.0		111	85-115	2.89	20	
Selenium	10.7	0.200	mg/L	10.0		107	85-115	0.143	20	
Silver	0.129	0.050	mg/L	0.125		103	85-115	0.439	20	

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Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B109032 - Dissolved Metals										
LCS Dup (B109032-BSD1)				Prepared & Analyzed: 09/07/11						
Sodium	8.70	1.00	mg/L	8.10		107	85-115	0.860	20	

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

Green Analytical Laboratories
dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303
www.GreenAnalytical.com

Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

Dissolved Mercury - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B109067 - EPA 245.1/7470										
Blank (B109067-BLK1)				Prepared & Analyzed: 09/12/11						
Mercury	ND	0.0002	mg/L							
LCS (B109067-BS1)				Prepared & Analyzed: 09/12/11						
Mercury	0.0021	0.0002	mg/L	0.00200		107	85-115			
LCS Dup (B109067-BSD1)				Prepared & Analyzed: 09/12/11						
Mercury	0.0022	0.0002	mg/L	0.00200		110	85-115	2.49	20	

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

dzufelt@greenanalytical.com p: 970.247.4220 f: 970 247 4227 75 Suttle Street Durango, CO 81303
www.GreenAnalytical.com

Industrial Ecosystems Inc.	Project: MW6	
49 CR 3150	Project Name / Number: 9932	**Reported:**
Aztec NM, 87410	Project Manager: Marcella Marquez	09/13/11 10:35

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
	*Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

Green Analytical Laboratories

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: IEI
Contact: Marcella
Address: 49 CR 3150
Aztec, NM 87410
Phone Number: 505-632-1782
FAX Number: 505-632-1876

NOTES:
1) Ensure proper container packaging.
2) Ship samples promptly following collection.
3) Designate Sample Reject Disposition.
PO# 9932
Project Name: MW 6

Table 1. – Matrix Type
1 = Surface Water, 2 = Ground Water
3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
6 = Waste, 7 = Other (Specify) _____

FOR GAL USE ONLY
GAL JOB # 1109-002

Samplers Signature: M. Maggi

Lab Name: Green Analytical Laboratories (970) 247-4220 FAX (970) 247-4227
Address: 75 Suttle Street, Durango, CO 81303

Sample ID	Collection: Date	Collection: Time	Misc: Collected by: (Init.)	Misc: Matrix Type From Table 1	Misc: No. of Containers	Misc: Sample Filtered ? Y/N	Preservative(s): Unpreserved (Ice Only)	Preservative(s): HNO3	Preservative(s): HCL	Preservative(s): H2SO4	Preservative(s): NAOH	Preservative(s): Other (Specify)	Analyses Required: ✓Cations+Anions	Analyses Required: RCRA metals	Analyses Required: BTEX + TDS	Comments
1. MW 6	8/31/11	9:30	MM	2	1	N							✓			Temp 20.6 cc
2. MW 6	↓	9:30		2	1	N								✓		3.0°C Dup on ice
3. MW 6	↓	9:30		2	2	N									✓	
4.																
5.																
6.																
7.																
8.																
9.																
10.																

Page 15.05

01

Relinquished by: M. Maggi	Date: 8/31/11	Time: 2:20	Received by:	Date: 8-31-11	Time: 2120
Relinquished by:	Date: 8/31/11	Time: 2:55	Received by: Christie Clark	Date: 8/31/11	Time: 1455

* Sample Reject: [ ] Return [ ] Dispose [ ] Store (30 Days)

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 07, 2011

Debbie Zufelt

Green Analytical Laboratories

75 Suttle Street

Durango, CO 81303

RE: I E I

Enclosed are the results of analyses for samples received by the laboratory on 09/02/11 9:40.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Green Analytical Laboratories
Debbie Zufelt
75 Suttle Street
Durango CO, 81303
Fax To: (970) 247-4227

Received:	09/02/2011	Sampling Date:	08/31/2011
Reported:	09/07/2011	Sampling Type:	Water
Project Name:	I E I	Sampling Condition:	Cool & Intact
Project Number:	1109-002-01	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: M W 6 (H101874-01)

BTEX 8021B mg/L **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	09/06/2011	ND	0.053	106	0.0500	2.52	
Toluene*	<0.001	0.001	09/06/2011	ND	0.052	104	0.0500	3.08	
Ethylbenzene*	<0.001	0.001	09/06/2011	ND	0.053	105	0.0500	2.88	
Total Xylenes*	<0.003	0.003	09/06/2011	ND	0.157	105	0.150	2.73	

Surrogate: 4-Bromofluorobenzene (PIL *109 %* *70.7-118*

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Cardinal

CHAIN OF CUSTODY RECORD

Page ____ of ____

Client: GREEN ANALYTICAL
Contact: DEBBIE ZUFELT
Address: 75 SUTTLE ST
DURANGO, CO 81303
Phone Number: 970-247-4220
FAX Number: 970-247-4227

NOTES:
1) Ensure proper container packaging.
2) Ship samples promptly following collection.
3) Designate Sample Reject Disposition.
PO# GA 11-201
Project Name: IEI

Table 1. – Matrix Type
1 = Surface Water, 2 = Ground Water
3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
6 = Waste, 7 = Other (Specify) _____

FOR GAL USE ONLY
GAL JOB #

Samplers Signature:

PLEASE CALL WITH ANY QUESTIONS

Lab Name: Green Analytical Laboratories (970) 247-4220 FAX (970) 247-4227
Address: 75 Suttle Street, Durango, CO 81303

Sample ID	Collection: Date	Collection: Time	Misc: Collected by: (Init.)	Misc: Matrix Type From Table 1	Misc: No. of Containers	Misc: Sample Filtered ? Y/N	Preservative(s): Unpreserved (Ice Only)	Preservative(s): HNO3	Preservative(s): HCL ?	Preservative(s): H2SO4	Preservative(s): NAOH	Preservative(s): Other (Specify)	Analyses Required: BTEX 8021	Comments
H101874														
1 MW6	8-31-11	09:30	MM	2	2	N			X				X	1109-002-01
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Relinquished by: Michael Valentine	Date: 9-1-11	Time: 16:00	Received by: Kat Hendon	Date: 9/2/11	Time: 9:40
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

* Sample Reject: [ ] Return [ ] Dispose [ ] Store (30 Days)

4°C #26

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

April 11, 2011

MARCELLA MARQUEZ

INDUSTRIAL ECOSYSTEMS

49 CR 3150

AZTEC, NM 87410

RE: BLANCO GROUNDWATER

Enclosed are the results of analyses for samples received by the laboratory on 03/30/11 8:00.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

INDUSTRIAL ECOSYSTEMS
MARCELLA MARQUEZ
49 CR 3150
AZTEC NM, 87410
Fax To: (505) 632-1876

Received:	03/30/2011	Sampling Date:	03/28/2011
Reported:	04/11/2011	Sampling Type:	Water
Project Name:	BLANCO GROUNDWATER	Sampling Condition:	Cool & Intact
Project Number:	9590	Sample Received By:	Jodi Henson
Project Location:	BLANCO GROUONDWATER		

Sample ID: MW 1 - #1 (H100628-01)

Arsenic, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Arsenic	<0.100	0.100	04/05/2011	ND	4.03	101	4.00	2.77	GAL

Barium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Barium	**0.140**	0.010	04/05/2011	ND	1.94	97.0	2.00	2.61	GAL

Bicarbonate 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Bicarbonate	**149**	10.0	04/01/2011	ND				0.673	GAL

BTEX 8260B mg/L **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**0.001**	0.001	03/30/2011	ND	0.020	101	0.0200	10.4	
Toluene*	<0.001	0.001	03/30/2011	ND	0.020	98.8	0.0200	9.43	
Ethylbenzene*	<0.001	0.001	03/30/2011	ND	0.021	106	0.0200	9.50	
Total Xylenes*	<0.003	0.003	03/30/2011	ND	0.058	96.9	0.0600	9.44	

Surrogate: Dibromofluoromethane	*107 %*	*80-120*
Surrogate: Toluene-d8	*94.6 %*	*80-120*
Surrogate: 4-Bromofluorobenzene	*76.3 %*	*80-120*

Cadmium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Cadmium	<0.010	0.010	04/05/2011	ND	1.91	95.5	2.00	2.12	GAL

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

INDUSTRIAL ECOSYSTEMS
MARCELLA MARQUEZ
49 CR 3150
AZTEC NM, 87410
Fax To: (505) 632-1876

Received:	03/30/2011	Sampling Date:	03/28/2011
Reported:	04/11/2011	Sampling Type:	Water
Project Name:	BLANCO GROUNDWATER	Sampling Condition:	Cool & Intact
Project Number:	9590	Sample Received By:	Jodi Henson
Project Location:	BLANCO GROUONDWATER		

Sample ID: MW 1 - #1 (H100628-01)

Calcium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Calcium	**222**	0.500	04/05/2011	ND	4.20	84.0	5.00	2.90	GAL

Carbonate 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Carbonate	<10.0	10.0	04/01/2011	ND					GAL

Chromium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chromium	<0.010	0.010	04/05/2011	ND	2.01	100	2.00	2.52	GAL

Hydroxide 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Hydroxide	<10.0	10.0	04/01/2011	ND					GAL

Lead, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Lead	<0.050	0.050	04/05/2011	ND	2.07	104	2.00	1.95	GAL

Magnesium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Magnesium	**26.4**	0.500	04/05/2011	ND	20.4	81.8	25.0	3.23	GAL

Mercury, 245.1 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Mercury	<0.0002	0.0002	04/06/2011	ND	0.0022	110	0.00200	4.44	GAL

Potassium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

INDUSTRIAL ECOSYSTEMS
MARCELLA MARQUEZ
49 CR 3150
AZTEC NM, 87410
Fax To: (505) 632-1876

Received:	03/30/2011	Sampling Date:	03/28/2011
Reported:	04/11/2011	Sampling Type:	Water
Project Name:	BLANCO GROUNDWATER	Sampling Condition:	Cool & Intact
Project Number:	9590	Sample Received By:	Jodi Henson
Project Location:	BLANCO GROUONDWATER		

Sample ID: MW 1 - #1 (H100628-01)

Potassium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Potassium	**6.40**	0.500	04/05/2011	ND	8.34	83.4	10.0	0.964	GAL

Selenium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Selenium	<0.200	0.200	04/05/2011	ND	7.88	98.5	8.00	2.31	GAL

Silver, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Silver	<0.010	0.010	04/05/2011	ND	0.390	97.5	0.400	2.60	GAL

Sodium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sodium	**748**	0.500	04/05/2011	ND	6.61	110	6.00	3.86	GAL

Sulfate 4500SO4 mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	**2300**	10.0	03/30/2011	ND	58.0	107	54.0	0.00	GAL

TDS 2540C mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	**4000**	10.0	03/29/2011	ND	3540	101	3510	2.53	GAL

Total Alkalinity 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Total	**149**	10.0	04/01/2011	ND	340	96.6	352	0.673	GAL

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

INDUSTRIAL ECOSYSTEMS
MARCELLA MARQUEZ
49 CR 3150
AZTEC NM, 87410
Fax To: (505) 632-1876

Received:	03/30/2011	Sampling Date:	03/28/2011
Reported:	04/11/2011	Sampling Type:	Water
Project Name:	BLANCO GROUNDWATER	Sampling Condition:	Cool & Intact
Project Number:	9590	Sample Received By:	Jodi Henson
Project Location:	BLANCO GROUONDWATER		

Sample ID: MW 1 - #2 (H100628-02)

Arsenic, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Arsenic	<0.100	0.100	04/05/2011	ND	4.03	101	4.00	2.77	GAL

Barium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Barium	**0.190**	0.010	04/05/2011	ND	1.94	97.0	2.00	2.61	GAL

Bicarbonate 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Bicarbonate	**139**	10.0	04/01/2011	ND				0.673	GAL

BTEX 8260B mg/L **Analyzed By: CMS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	03/30/2011	ND	0.020	101	0.0200	10.4	
Toluene*	<0.001	0.001	03/30/2011	ND	0.020	98.8	0.0200	9.43	
Ethylbenzene*	<0.001	0.001	03/30/2011	ND	0.021	106	0.0200	9.50	
Total Xylenes*	<0.003	0.003	03/30/2011	ND	0.058	96.9	0.0600	9.44	

Surrogate: Dibromofluoromethane	*108 %*	*80-120*
Surrogate: Toluene-d8	*93.1 %*	*80-120*
Surrogate: 4-Bromofluorobenzene	*76.9 %*	*80-120*

Cadmium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Cadmium	<0.010	0.010	04/05/2011	ND	1.91	95.5	2.00	2.12	GAL

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

INDUSTRIAL ECOSYSTEMS
MARCELLA MARQUEZ
49 CR 3150
AZTEC NM, 87410
Fax To: (505) 632-1876

Received:	03/30/2011	Sampling Date:	03/28/2011
Reported:	04/11/2011	Sampling Type:	Water
Project Name:	BLANCO GROUNDWATER	Sampling Condition:	Cool & Intact
Project Number:	9590	Sample Received By:	Jodi Henson
Project Location:	BLANCO GROUONDWATER		

Sample ID: MW 1 - #2 (H100628-02)

Calcium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Calcium	**217**	0.500	04/05/2011	ND	4.20	84.0	5.00	2.90	GAL

Carbonate 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Carbonate	<10.0	10.0	04/01/2011	ND					GAL

Chromium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chromium	<0.010	0.010	04/05/2011	ND	2.01	100	2.00	2.52	GAL

Hydroxide 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Hydroxide	<10.0	10.0	04/01/2011	ND					GAL

Lead, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Lead	<0.050	0.050	04/05/2011	ND	2.07	104	2.00	1.95	GAL

Magnesium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Magnesium	**27.2**	0.500	04/05/2011	ND	20.4	81.8	25.0	3.23	GAL

Mercury, 245.1 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Mercury	<0.0002	0.0002	04/06/2011	ND	0.0022	110	0.00200	4.44	GAL

Potassium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

INDUSTRIAL ECOSYSTEMS
MARCELLA MARQUEZ
49 CR 3150
AZTEC NM, 87410
Fax To: (505) 632-1876

Received:	03/30/2011	Sampling Date:	03/28/2011
Reported:	04/11/2011	Sampling Type:	Water
Project Name:	BLANCO GROUNDWATER	Sampling Condition:	Cool & Intact
Project Number:	9590	Sample Received By:	Jodi Henson
Project Location:	BLANCO GROUONDWATER		

Sample ID: MW 1 - #2 (H100628-02)

Potassium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Potassium	**6.90**	0.500	04/05/2011	ND	8.34	83.4	10.0	0.964	GAL

Selenium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Selenium	<0.200	0.200	04/05/2011	ND	7.88	98.5	8.00	2.31	GAL

Silver, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Silver	<0.010	0.010	04/05/2011	ND	0.390	97.5	0.400	2.60	GAL

Sodium, 200.7 mg/L **Analyzed By: JM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sodium	**772**	0.500	04/05/2011	ND	6.61	110	6.00	3.86	GAL

Sulfate 4500SO4 mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate	**2100**	10.0	03/30/2011	ND	58.0	107	54.0	0.00	GAL

TDS 2540C mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS	**4000**	10.0	03/29/2011	ND	3540	101	3510	2.53	GAL

Total Alkalinity 2320B mg/L **Analyzed By: CK**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Alkalinity, Total	**139**	10.0	04/01/2011	ND	340	96.6	352	0.673	GAL

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

GAL	Analysis subcontracted to Green Analytical Laboratories, a subsidiary of Cardinal Laboratories.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CHAIN OF CUSTODY RECORD

Client: I.E.I

Contact: Marcella

Address: 49 CR 3150
Aztec NM

Phone Number: 505.632.1782

FAX Number: 505.632.1876

NOTES:

1) Ensure proper container packaging.

2) Ship samples promptly following collection.

3) Designate Sample Reject Disposition.

PO# 9590

Project Name: Blanco-groundwater

Table 1. – Matrix Type
1 = Surface Water, 2 = Ground Water
3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
6 = Waste, 7 = Other (Specify)

FOR GAL USE ONLY
GAL JOB #

Samplers Signature: Steve Hayden

Lab Name: Green Analytical Laboratories (970) 247-4220 FAX (970) 247-4227

Address: 75 Suttle Street, Durango, CO 81303

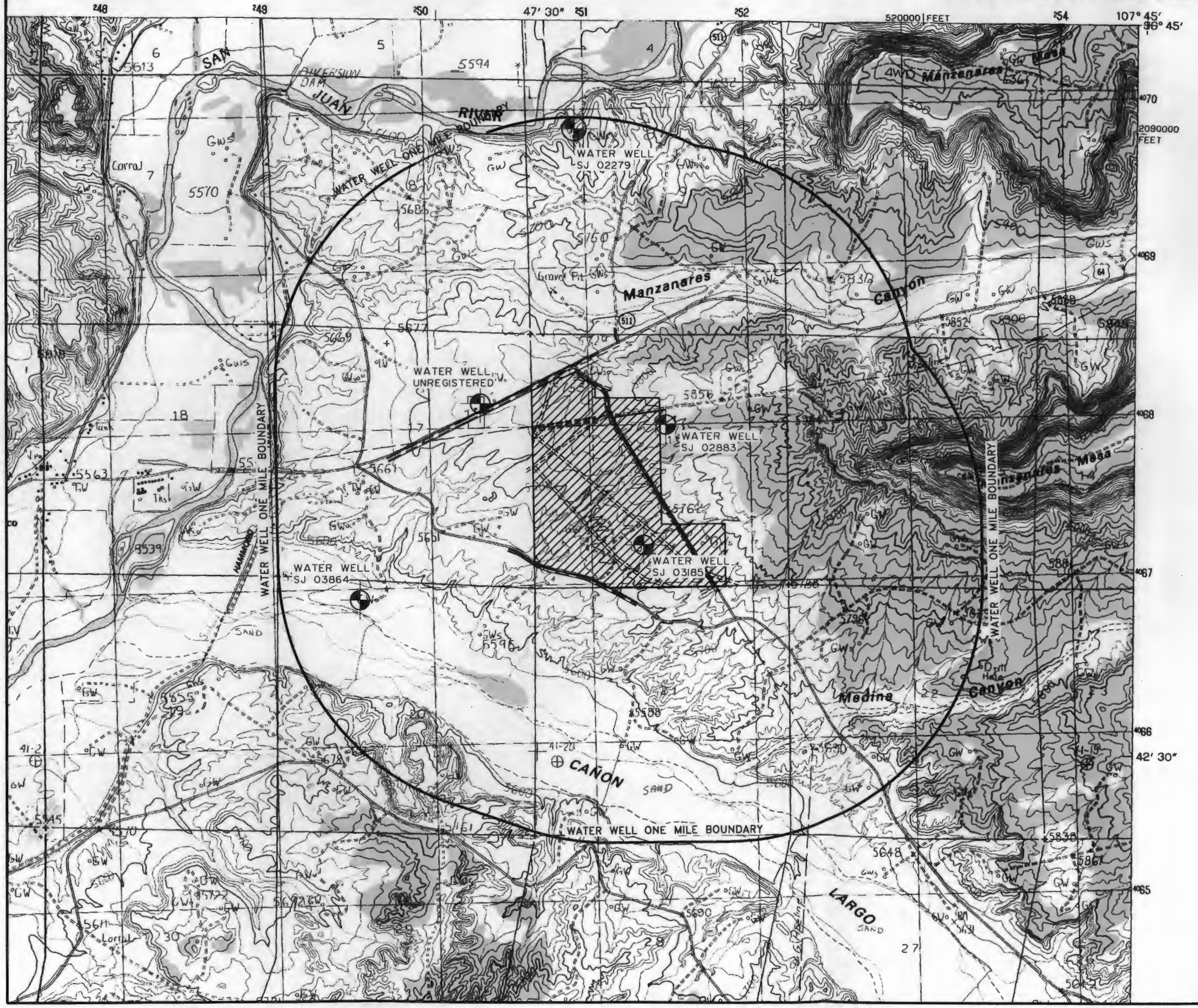
Sample ID	Collection: Date	Collection: Time	Misc: Collected by: (Init.)	Misc: Matrix Type From Table 1	Misc: No. of Containers	Misc: Sample Filtered ? Y/N	Preservative(s): Unpreserved (Ice Only)	Preservative(s): HNO3	Preservative(s): HCL	Preservative(s): H2SO4	Preservative(s): NAOH	Preservative(s): Other (Specify)	Analyses Required: Cations	Anions	TDS	BTEX	RCRA metals	*Chloride			Comments
H100628-																					
1. MW1 - #1	3/28/11	12:30	SA	2	6	N															Please list Chloride results on seperate page.
2. MW4 - #2	3/28/11	12:30	SA	2	6	N															
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

Relinquished by: Steve Hayden	Date: 3/28/11	Time: 1:00 pm	Received by: M. Marquez	Date: 3/28/11	Time: 1:00 pm
Relinquished by: M. Marquez	Date: 3/28/11	Time: 2:05 pm	Received by: Kristin Clark	Date: 3/28/11	Time: 1405

* Sample Reject: [ ] Return [ ] Dispose [ ] Store (30 Days)

-1°C #210 Jodi Henson 3/28/11 2:00

BLANCO QUADRANGLE
NEW MEXICO–SAN JUAN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



WATER WELL LOCATIONS
WITHIN 1 MILE OF
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
LYING IN SECTION 16,
T29N R09W, N.M.P.M.,
SAN JUAN COUNTY,
NEW MEXICO

1000 500 0 1000
SCALE: 1"=1000'

BY	REVISION	DATE

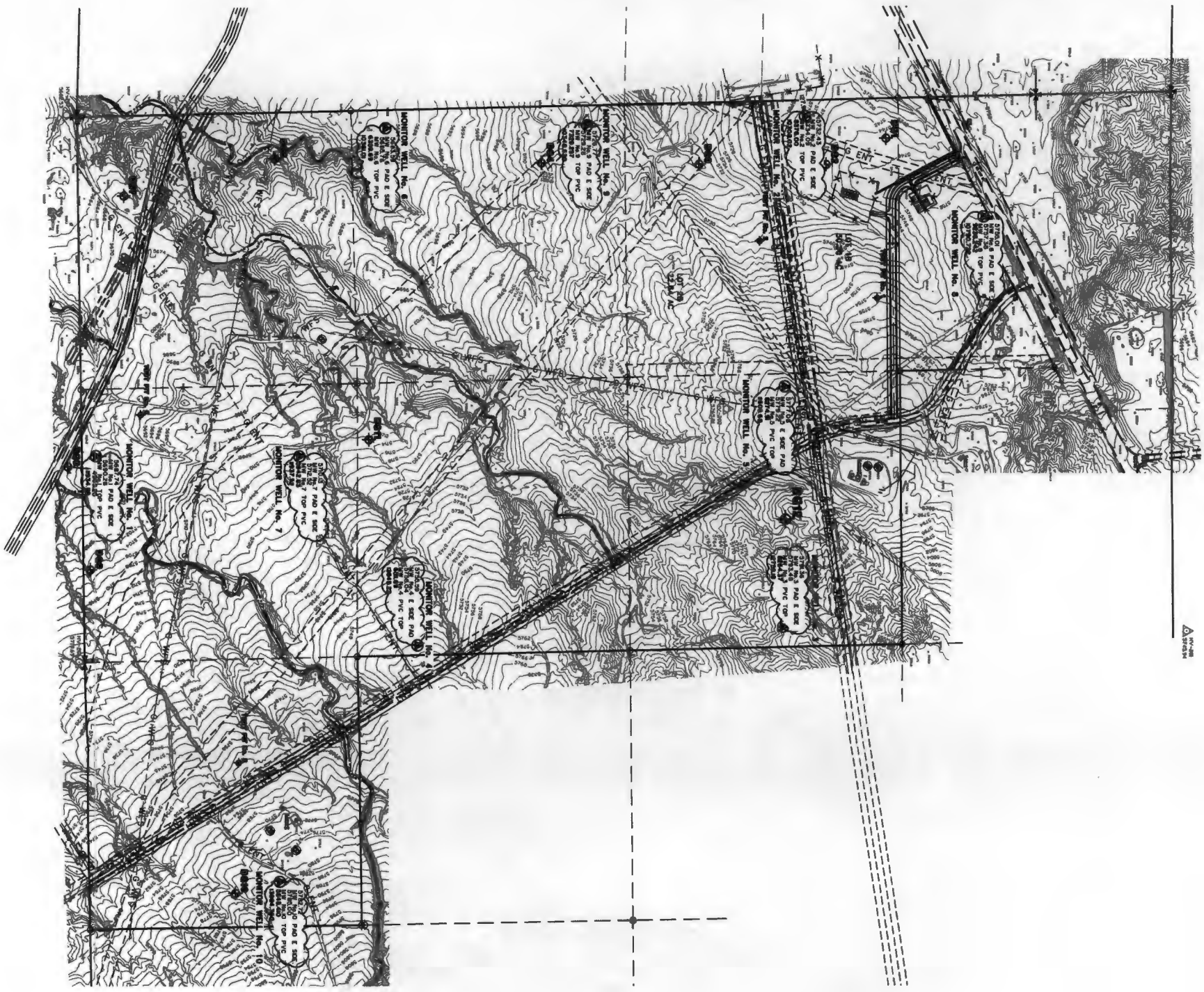
PRINTED: March 29, 2012
FILE: \\Hws\D\DWG-HWS\2009\09467\09467SETDDN.dwg

CHENEY-WALTERS-ECHOLS
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

NEW MEXICO REGISTERED PROFESSIONAL ENGINEER
NO. 3634
EDWARD P. ECHOLS

WATER WELLS WITHIN 1 MILE OF
CROWE BLANCO PROPERTIES, LLC
OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE: 03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE: 1" = 1000'
FILE: 09467SETDDN
SHEET 10 OF 17



LEGEND

- DESIGNATES MONITOR WELL LOCATION
- DESIGNATES SOILS TEST PIT FOR DENSITY
- DESIGNATES SOILS TEST PIT FOR BACKGROUND

1" = 300' SCALE IN FEET

300 150 0 300 600 900

TEST PITS AND MONITOR WELLS LOCATIONS
CROWE BLANCO PROPERTIES, LLC

OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

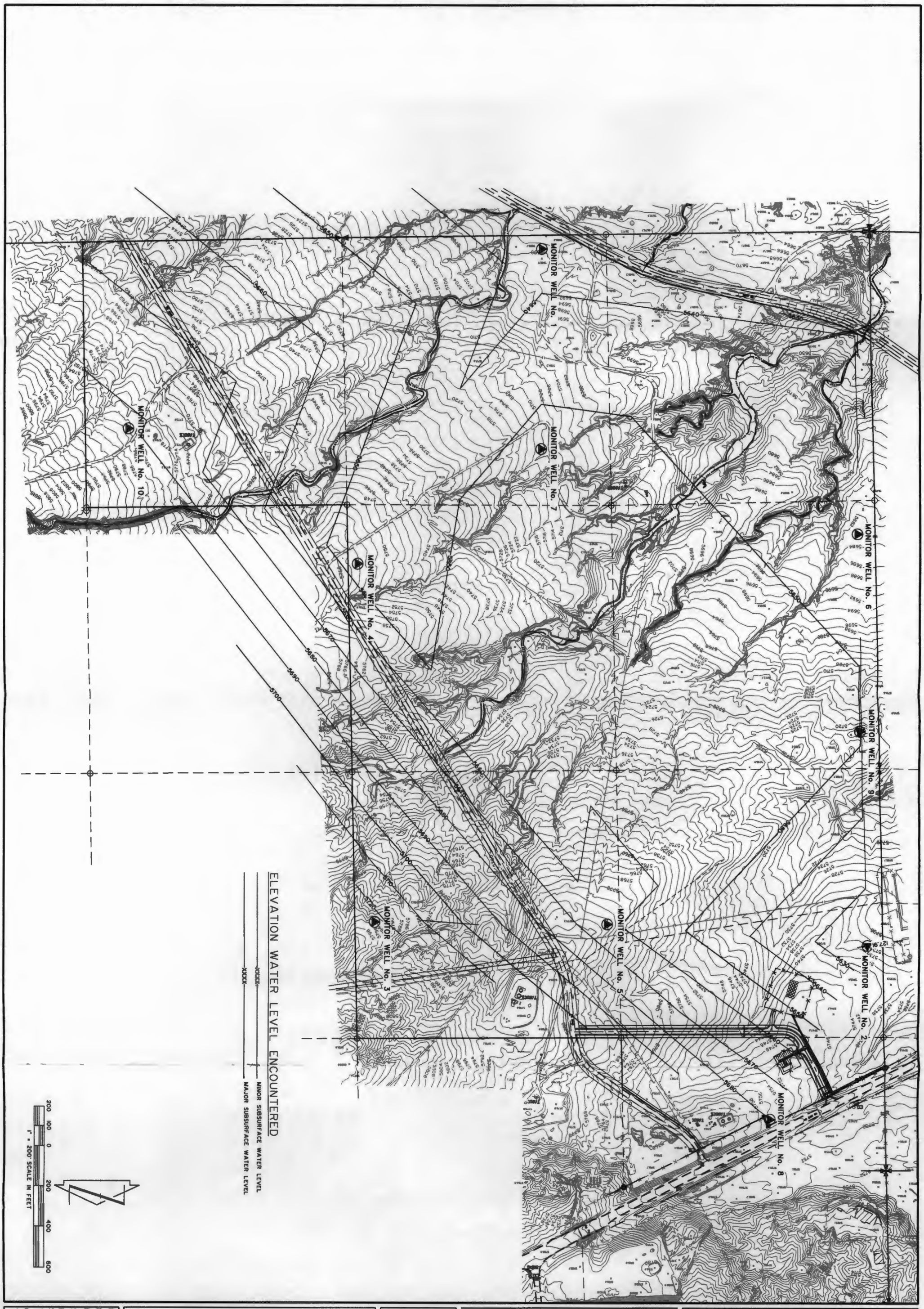
DATE:03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE:N.T.S.
FILE:09467SET
SHEET 14 OF 17

REGISTERED PROFESSIONAL ENGINEER
NO. 3634
NEW MEXICO
RICHARD P. CHENEY

CHENEY·WALTERS·ECHOLS INC.
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

DATE	REVISION	BY

PRINTED: March 29, 2012
FILE: \\Hws\D\DWG-HWS\2009\09467\9467SET.dwg



CONFINED WATER SURFACE MAP
CROWE BLANCO PROPERTIES, LLC

OPERATED BY INDUSTRIAL ECOSYSTEMS
BLANCO, NEW MEXICO

DATE:03/21/2012
DRAWN BY: LH
PROJ. 09467
SCALE:1" = 200'
FILE:09467SET
SHEET 15 OF 17

REGISTERED PROFESSIONAL ENGINEER
NO. 3634
NEW MEXICO
RICHARD P. CHENEY

CHENEY·WALTERS·ECHOLS INC.
ENGINEERS · SURVEYORS
909 W. APACHE · FARMINGTON, NEW MEXICO 87401 · (505)327-3303

DATE	REVISION	BY

PRINTED: March 29, 2012
FILE: \\Hws\D\DWG-HWS\2009\09467\9467SET.dwg

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

For State Use Only:

Form C-137
Revised August 1, 2011

Submit 1 Copy to Santa Fe Office

APPLICATION FOR SURFACE WASTE MANAGEMENT FACILITY

A meeting should be scheduled with the Division's Santa Fe office Environmental Bureau prior to pursuing an application for a surface waste management facility in order to determine if the proposed location is capable of satisfying the siting requirements of Subsections A and B of 19.15.36.13 NMAC for consideration of an application submittal.

1 Application: ☒ New ☐ Modification ☐ Renewal

2. Type: ☐ Evaporation ☐ Injection ☐ Treating Plant ☐ Landfill ☒ Landfarm ☐ Other

3. Facility Status: ☒ Commercial ☐ Centralized

4. Operator: Crowe Blanco Properties, LLC Operated by: Industrial Ecosystems, Inc.

Address: 49 CR 3150 * Aztec, NM 87410

Contact Person: Terry Lattin, President/GM Phone: (505) 860-2885 or (505) 632-1782

5. Location: NW 1 /4 /4 Section 16 Township T29N Range 9W

6. Is this an existing facility? ☐ Yes ☒ No If yes, provide permit number _____

7. Attach the names and addresses of the applicant and principal officers and owners of 25 percent or more of the applicant. Specify the office held by each officer and identify the individual(s) primary responsible for overseeing management of the facility.

8. Attach a plat and topographic map showing the surface waste management facility's location in relation to governmental surveys (quarter-quarter section, township and range); highways or roads giving access to the surface waste management facility site; watercourses; fresh water sources, including wells and springs; and inhabited buildings within one mile of the site's perimeter.

9. Attach the names and addresses of the surface owners of the real property on which the surface waste management facility is sited and surface owners of the real property within one mile of the site's perimeter.

10. Attach a description of the surface waste management facility with a diagram indicating the location of fences and cattle guards, and detailed construction/installation diagrams of pits, liners, dikes, piping, sprayers, tanks, roads, fences, gates, berms, pipelines crossing the surface waste management facility, buildings and chemical storage areas.

11. Attach engineering designs, certified by a registered professional engineer, including technical data on the design elements of each applicable treatment, remediation and disposal method and detailed designs of surface impoundments.

12. Attach a plan for management of approved oil field wastes that complies with the applicable requirements contained in 19.15.36.13, 19.15.36.14, 19.15.36.15 and 19.15.36.17 NMAC.

13. Attach an inspection and maintenance plan that complies with the requirements contained in Subsection L of 19.15.36.13 NMAC.

14. Attach a hydrogen sulfide prevention and contingency plan that complies with those provisions of 19.15.3.118 NMAC that apply to surface waste management facilities.

15. Attach a closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the urface waste management facility in a manner that will protect fresh water, public health, safety and the environment (the closure and post closure plan shall comply with the requirements contained in Subsection D of 19.15.36.18 NMAC).

16 Attach a contingency plan that complies with the requirements of Subsection N of 19.15.36.13 NMAC and with NMSA 1978, Sections 12-12-1 through 12-12-30, as amended (the Emergency Management Act).

17. Attach a plan to control run-on water onto the site and run-off water from the site that complies with the requirements of Subsection M of 19.15.36.13 NMAC.

18. In the case of an application to permit a new or expanded landfill, attach a leachate management plan that describes the anticipated amount of leachate that will be generated and the leachate's handling, storage, treatment and disposal, including final post closure options.

19. In the case of an application to permit a new or expanded landfill, attach a gas safety management plan that complies with the requirements of Subsection O of 19.15.36.13 NMAC

20. Attach a best management practice plan to ensure protection of fresh water, public health, safety and the environment.

21. Attach a demonstration of compliance with the siting requirements of Subsections A and B of 19.15.36.13 NMAC.

22. Attach geological/hydrological data including:

(a) a map showing names and location of streams, springs or other watercourses, and water wells within one mile of the site;

(b) laboratory analyses, performed by an independent commercial laboratory, for major cations and anions; benzene, toluene, ethyl benzene and xylenes (BTEX); RCRA metals; and total dissolved solids (TDS) of ground water samples of the shallowest fresh water aquifer beneath the proposed site;

(c) depth to, formation name, type and thickness of the shallowest fresh water aquifer;

(d) soil types beneath the proposed surface waste management facility, including a lithologic description of soil and rock members from ground surface down to the top of the shallowest fresh water aquifer;

(e) geologic cross-sections;

(f) potentiometric maps for the shallowest fresh water aquifer; and

(g) porosity, permeability, conductivity, compaction ratios and swelling characteristics for the sediments on which the contaminated soils will be placed.

23. In the case of an existing surface waste management facility applying for a minor modification, describe the proposed change and identify information that has changed from the last C-137 filing.

24. The division may require additional information to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, safety or the environment and that the surface waste management facility will comply with division rules and orders

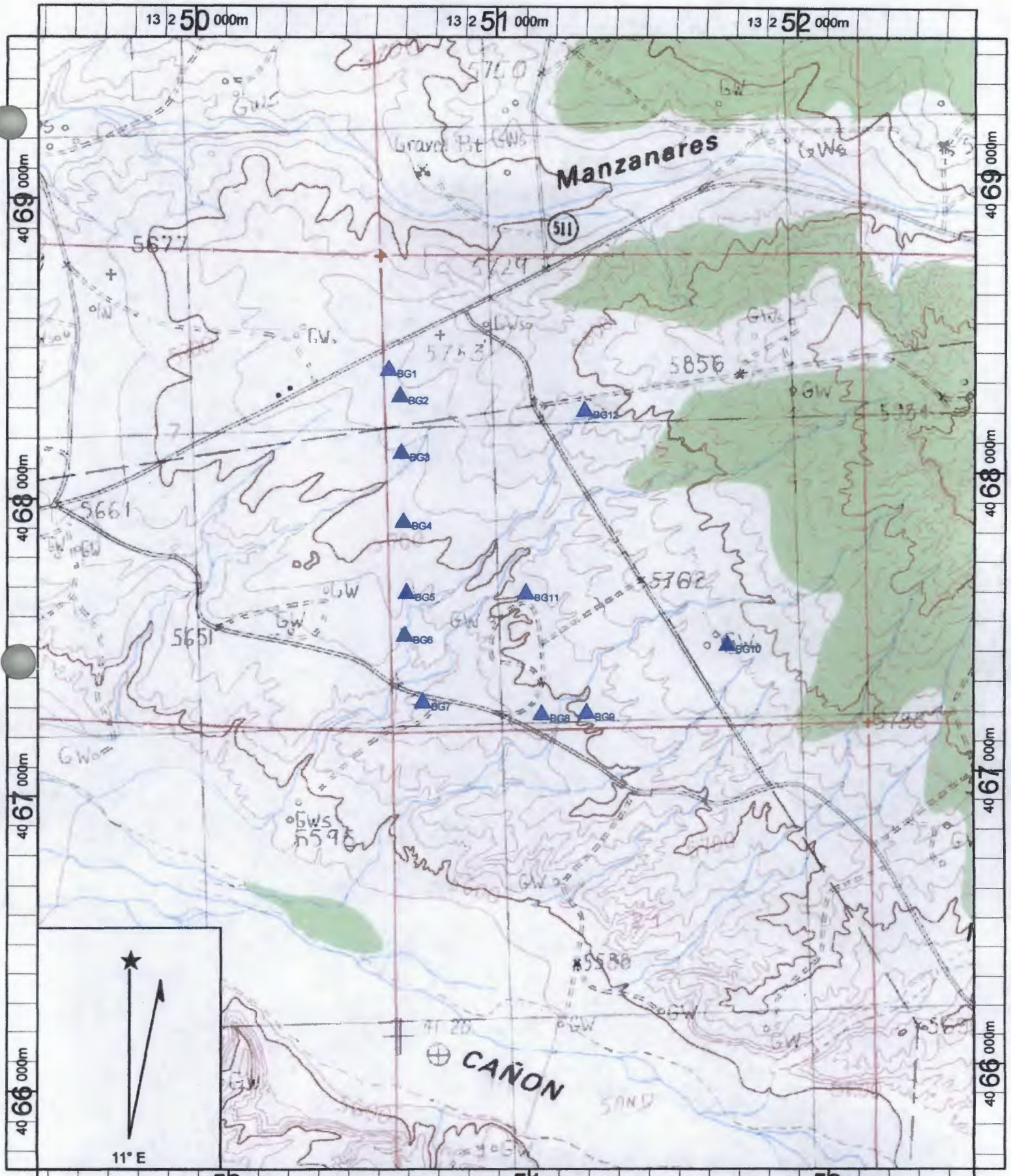
25. CERTIFICATION

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name: John P. Crowe Title: Secretary

Signature: John P. Crowe Date: 4/24/12

E-mail Address: JohnCrowe@me.com



Name: BLANCO
Date: 9/22/2009
Scale: 1 inch equals 1333 feet

Location: 13 250979 E 4067597 N
Caption: Industrial Ecosystems Inc
New Landfarm
Background Sampling Points

Markers

- Name: BG1
  - Short Name: BG1
  - Coordinates: 13 250609 E, 4068397 N
- Name: BG2
  - Short Name: BG2
  - Coordinates: 13 250647 E, 4068309 N
- Name: BG3
  - Short Name: BG3
  - Coordinates: 13 250646 E, 4068123 N
- Name: BG4
  - Short Name: BG4
  - Coordinates: 13 250644 E, 4067892 N
- Name: BG5
  - Short Name: BG5
  - Coordinates: 13 250648 E, 4067650 N
- Name: BG6
  - Short Name: BG6
  - Coordinates: 13 250637 E, 4067501 N
- Name: BG7
  - Short Name: BG7
  - Coordinates: 13 250691 E, 4067280 N
- Name: BG8
  - Short Name: BG8
  - Coordinates: 13 251091 E, 4067231 N
- Name: BG9
  - Short Name: BG9
  - Coordinates: 13 251239 E, 4067230 N
- Name: BG10
  - Short Name: BG10
  - Coordinates: 13 251714 E, 4067442 N
- Name: BG11
  - Short Name: BG11
  - Coordinates: 13 251049 E, 4067638 N
- Name: BG12
  - Short Name: BG12
  - Coordinates: 13 251261 E, 4068246 N

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

BLANCO LANDFARM BACKGROUND SAMPLING PROTOCOL

Background soil samples were collected by Blagg Engineering, Inc. (BEI) on August 17, 2009 at the location of the proposed Industrial Ecosystems, Inc. Blanco landfarm facility in San Juan County, New Mexico prior to initiation of any ground surface disturbance. The purpose of the sampling was to establish analytical parameters in accordance with NMAC 19.15.36.15 (B), "Background Testing". A total of twelve (12) composite background soil samples, each consisting of 16 discrete samples, were collected from throughout the proposed landfarm site. The composite samples were collected with a sample spade at a depth of at least six (6) inches below the original ground surface, thoroughly mixed, placed into sample containers and stored in an ice chest with ice. The sampling spade and composite mixing bowl was cleaned with an Alconox soap mix and rinsed with distilled water between sample events. Following collection, the samples were express delivered to Benchmark Analytics, Inc. in Center Valley, Pennsylvania in with chain-of-custody documentation.

Following the initial laboratory analytical testing by Benchmark, BEI was notified that the lab could not run total petroleum hydrocarbons by U.S. EPA Method 418.1, or Vinyl Chloride on soil, as these were tests unique to the State of New Mexico. On December 16, 2010 BEI revisited the original background sample locations (using GPS coordinates) and recollected the twelve (12) composite background soil samples, each consisting of 16 discrete samples. As with the original sampling, the composite samples were collected with a sample spade at a depth of at least six (6) inches below the original ground surface, thoroughly mixed, placed into sample containers and stored in an ice chest with ice. Sampling equipment was cleaned between sample events as described above. Following collection, the samples were express delivered to Hall Environmental Laboratories in Albuquerque, New Mexico with chain-of-custody documentation.

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

BLANCO LANDFARM SAMPLING PLAN FOR 8/17/2009 EVENT

1) Contact Benchmark Analytical to establish proper containers and obtain containers and Chain-of-Custody paperwork.

2) Identify proposed landfarm perimeter and locate 12 background sample spots throughout interior at undisturbed, natural surface.

3) Assemble Sampling Equipment:

-GPS Unit
-Sample Spade
-1 Gallon Collection Baggies
-12" SS Mixing Bowl
-Sample Containers (16 oz Glass Jars with Teflon Lined Lids) with labels
-2 Each 5 Gallon Buckets (Pre-Cleaned)
-10 Gallons Distilled Water
-Powered Alconox Soap
-Paper Towels
-Nitril Sampling Gloves
-Large Ice Chest with Ice
-Chain-of-Custody Forms

4) At each pre-determined sample point, use sample spade to collect a 16 point composite sample from a minimum depth of 6-inches below ground surface and place into a new, unused 1-gallon sample baggie, wearing new, unused sample gloves.

5) Mix sample in baggie, then transfer to mixing bowl. Continue to thoroughly mix, removing any rocks.

6) Transfer mixed sample to 16-ounce sample jar. Label jar, then place into ice chest.

7) Wash sample spade and mixing bowl in 5-gallon bucket with Alconox in distilled water, then rinse in 5-gallon bucket with distilled water. Pat dry with paper towels.

8) Move to next sample point and repeat sampling sequence.

9) Complete and sign Chain-of-Custody documentation. Wrap sample containers in protective bubble wrap for express shipment in ice chest. Seal ice chest and label.

10) Deliver ice chest to shipping service.

BLAGG ENGINEERING, INC.
P.O. Box 87, Bloomfield, New Mexico 87413
Phone: (505)632-1199 Fax: (505)632-3903

BLANCO LANDFARM SAMPLING PLAN FOR 12/16/2010 EVENT

1) Using GPS unit, identify original 12 background sample spots from 8/17/09 sample event.

2) Assemble Sampling Equipment:

-GPS Unit
-Sample Spade
-1 Gallon Collection Baggies
-12" SS Mixing Bowl
-Sample Containers (4 oz Glass Jars with Teflon Lined Lids) with labels
-2 Each 5 Gallon Buckets (Pre-Cleaned)
-10 Gallons Distilled Water
-Powered Alconox Soap
-Paper Towels
-Nitril Sampling Gloves
-Large Ice Chest with Ice
-Chain-of-Custody Forms

3) At each pre-determined sample point, use sample spade to collect a 16 point composite sample from a minimum depth of 6-inches below ground surface and place into a new, unused 1-gallon sample baggie, wearing new, unused sample gloves.

4) Mix sample in baggie, then transfer to mixing bowl. Continue to thoroughly mix, removing any rocks.

5) Transfer mixed sample to 4-ounce sample jar. Label jar, then place into ice chest.

6) Wash sample spade and mixing bowl in 5-gallon bucket with Alconox in distilled water, then rinse in 5-gallon bucket with distilled water. Pat dry with paper towels.

7) Move to next sample point and repeat sampling sequence.

8) Complete and sign Chain-of-Custody documentation. Wrap sample containers in protective bubble wrap for express shipment in ice chest. Seal ice chest and label.

9) Deliver ice chest to shipping service.

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 1 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #1 Lab ID: 09083072-001A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.169 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 5.11 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	123 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.204 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	10.9 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	9.62 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	14700 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	8.99 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	301 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV
Selenium	< 8.18 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.43 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	34.9 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #1 Lab ID: 09083072-001B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.22 @ 23.5°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.2 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/20/09	LNP-CV
Chloride	27.7 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/20/09	LNP-CV
Nitrate	< 10.2 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/20/09	LNP-CV
Sulfate	< 25.6 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/20/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		08/28/09 13:15	08/28/09	LNP-CV
Total Phenols	< 1.0 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	2.4 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	976000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.

* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Clin Mek DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 2 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #1 Lab ID: 09083072-001C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 26 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.02 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #1 Lab ID: 09083072-001D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Naphthalene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
2-Methylnaphthalene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
1-Methylnaphthalene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthylene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Fluorene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Phenanthrene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Anthracene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Pyrene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.

* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Clin Mehl DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 3 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Benzo[a]anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Chrysene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[b]fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[k]fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1,1-Dichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

REMARKS:

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MANAGER _____ DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 4 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #1 Lab ID: 09083072-001E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	568.8 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	381.1 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #2 Lab ID: 09083072-002A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.169 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 5.07 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	132 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.203 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	10.2 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	9.42 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	13900 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	7.97 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	280 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV
Selenium	< 8.12 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.42 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	37.2 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #2 Lab ID: 09083072-002B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.83 @ 23.6°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.2 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/20/09	LNP-CV
Chloride	31.6 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/20/09	LNP-CV

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MANAGER _____ DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

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WO#: 09083072
PAGE: 5 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

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Nitrate	< 10.2 mg/Kg-dry	EPA 300.0	08/20/09 15:49	08/20/09	LNP-CV
Sulfate	< 25.5 mg/Kg-dry	EPA 300.0	08/20/09 15:49	08/20/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C	08/28/09 13:15	08/28/09	LNP-CV
Total Phenols	< 1.0 mg/Kg-dry	EPA 420.4	08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	1.8 %	SM2540G	08/21/09 15:35	08/24/09	DMB-CV
Total Solids	982000 mg/Kg	SM2540G	08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #2 Lab ID: 09083072-002C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.02 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #2 Lab ID: 09083072-002D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Naphthalene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
2-Methylnaphthalene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
1-Methylnaphthalene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthylene	< 0.34 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV

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MANAGER Clint Mel. DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 6 of 39
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PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Acenaphthene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Fluorene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Phenanthrene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Chrysene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[b]fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[k]fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.34 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1,1-Dichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

REMARKS:

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MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

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WO#: 09083072
PAGE: 7 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

m,p-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #2 Lab ID: 09083072-002E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	565.4 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	372.1 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #3 Lab ID: 09083072-003A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.173 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 5.05 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	141 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.202 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	11.1 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	9.02 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	15200 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	8.62 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	295 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV
Selenium	< 8.08 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.41 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	35.2 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

REMARKS:

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MANAGER Chris Mech DATE: 9/11/2009

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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #3 Lab ID: 09083072-003B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.80 @ 23.8°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	25.9 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.4 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		08/28/09 13:15	08/28/09	LNP-CV
Total Phenols	< 1.0 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	1.4 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	986000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #3 Lab ID: 09083072-003C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #3 Lab ID: 09083072-003D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV

REMARKS:

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* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 9 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1,1-Dichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

REMARKS:

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L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Clin Mek DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 10 of 39
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PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm
RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

1,2-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #3 Lab ID: 09083072-003E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	635.8 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	426.0 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #4 Lab ID: 09083072-004A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.128 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 5.01 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	169 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV
Cadmium	< 0.200 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	9.11 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	8.00 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	12300 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	6.11 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	257 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV

REMARKS:

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MANAGER Cliff Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

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NAME: Jeff Blagg
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Selenium	< 8.02 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.40 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Zinc	26.5 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #4 Lab ID: 09083072-004B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.63 @ 23.7°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	27.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.3 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		08/28/09 13:15	08/28/09	LNP-CV
Total Phenols	< 0.98 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	1.3 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	987000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #4 Lab ID: 09083072-004C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #4 Lab ID: 09083072-004D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV

REMARKS:

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MANAGER Clin Mel DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
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NAME: Jeff Blagg
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Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 12 of 39
PO#:
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082	08/27/09 9:00	08/29/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1,1-Dichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

REMARKS:

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MANAGER Clin Mehl DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
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Fax: (610) 974-8104

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WO#: 09083072
PAGE: 13 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

1,1,1-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.041 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #4 Lab ID: 09083072-004E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 9:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	697.6 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	467.4 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #5 Lab ID: 09083072-005A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.152 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.95 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	51.4 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.198 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	3.23 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	2.41 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

REMARKS:

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MANAGER Clin Mele DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
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Work Order: 09083072

SEND DATA TO:

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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Iron	4320 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Lead	2.95 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Manganese	131 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Selenium	< 7.91 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.38 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Zinc	9.91 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: **#5** Lab ID: 09083072-005B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:10

Test	Result	Method	Reg. Limit	Analysis Start	Analysis End	Analyst *
pH	7.81 @ 23.9°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.0 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	< 25.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.0 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.95 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	0.4 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	996000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: **#5** Lab ID: 09083072-005C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:10

Test	Result	Method	Reg. Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.00 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.

* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 15 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #5 Lab ID: 09083072-005D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082		08/27/09 9:00	08/29/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry	EPA 8270C		08/21/09 9:00	08/25/09	JJ6-CV

REMARKS:

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L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Clin Mel DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

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WO#: 09083072
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry	EPA 8270C	08/21/09 9:00	08/25/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #5 Lab ID: 09083072-005E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:10

Test	Result	Method	Reg. Limit	Analysis Start	Analysis End	Analyst *
Uranium	< 239.5 µg/Kg	EPA 200.8	30	08/31/09 9:00	09/03/09	JRA-CV
Uranium	< 162.8 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

REMARKS:

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MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

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PAGE: 17 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #6 Lab ID: 09083072-006A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:25

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.182 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 5.16 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	104 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.207 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	6.70 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	5.02 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	8960 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	5.14 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	221 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV
Selenium	< 8.26 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.45 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	20.2 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #6 Lab ID: 09083072-006B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:25

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
pH	8.10 @ 23.1°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.4 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	31.7 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.4 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 26.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.96 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	4.1 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	959000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

REMARKS:

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MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

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Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
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PHONE: (505) 632-1199
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WO#: 09083072
PAGE: 18 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #6 Lab ID: 09083072-006C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:25

Test	Result		Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 26 mg/Kg-dry		API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.04 mg/Kg-dry		API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #6 Lab ID: 09083072-006D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:25

Test	Result		Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.34 mg/Kg-dry	Q	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.34 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV

REMARKS:

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MANAGER Chris Medal DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
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Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
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WO#: 09083072
PAGE: 19 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Benzo[a]anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.34 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.042 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

REMARKS:

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MANAGER Cli Mel DATE: 9/11/2009

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WO#: 09083072
PAGE: 20 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #6 Lab ID: 09083072-006E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	524.0 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	351.1 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #7 Lab ID: 09083072-007A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.133 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.74 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	114 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.190 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	5.95 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	5.11 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	8050 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	4.74 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	189 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/28/09	RMD-CV
Selenium	< 7.59 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.33 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	20.1 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #7 Lab ID: 09083072-007B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.72 @ 23.2°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	< 25.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.

* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 21 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Nitrate	< 10.1 mg/Kg-dry	EPA 300.0	08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.1 mg/Kg-dry	EPA 300.0	08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C	09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.97 mg/Kg-dry	EPA 420.4	08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	0.5 %	SM2540G	08/21/09 15:35	08/24/09	DMB-CV
Total Solids	995000 mg/Kg	SM2540G	08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #7 Lab ID: 09083072-007C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #7 Lab ID: 09083072-007D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV

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MANAGER _____ DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

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WO#: 09083072
PAGE: 22 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm
RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Acenaphthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	Q	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

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MANAGER Clin Mek DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

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Center Valley, PA 18034
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NAME: Jeff Blagg
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WO#: 09083072
PAGE: 23 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #7 Lab ID: 09083072-007E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:40

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	372.5 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	249.6 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #8 Lab ID: 09083072-008A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.118 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.78 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	73.8 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.191 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	4.72 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	5.05 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	6220 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	4.68 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	152 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Selenium	< 7.64 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.34 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	19.7 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

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MANAGER Clin Mel DATE: 9/11/2009

LAB ID: PA39-401

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TEST REPORT

Industrial Ecosystems New Land Farm
RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #8 Lab ID: 09083072-008B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.73 @ 23.9°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	27.7 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.85 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	0.5 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	995000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #8 Lab ID: 09083072-008C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #8 Lab ID: 09083072-008D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV

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MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

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Center Valley, PA 18034
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TEST REPORT

Industrial Ecosystems New Land Farm

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Aroclor 1260	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	Q	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

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TEST REPORT

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RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

1,2-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #8 Lab ID: 09083072-008E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 10:55

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
Uranium	318.4 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	213.3 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #9 Lab ID: 09083072-009A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:10

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.196 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.87 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	74.3 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.195 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	4.98 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	4.92 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	7610 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	4.95 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	143 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

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MANAGER Clin Mehl DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 27 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm
RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

Selenium	< 7.80 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.36 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Zinc	17.9 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #9 Lab ID: 09083072-009B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	8.21 @ 23.0°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	27.4 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.2 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.94 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	0.8 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	992000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #9 Lab ID: 09083072-009C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #9 Lab ID: 09083072-009D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.
* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA
L Value above calibration range but within annually verified linear range
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MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

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TEST REPORT

Industrial Ecosystems New Land Farm

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Aroclor 1242	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry		EPA 8082	08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	Q	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

REMARKS:

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MANAGER Clin Mele DATE: 9/11/2009

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WO#: 09083072
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

1,1,1-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #9 Lab ID: 09083072-009E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:10

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Uranium	396.7 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	265.8 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #10 Lab ID: 09083072-010A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.137 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.86 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	64.3 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.195 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	4.48 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	4.46 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

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WO#: 09083072
PAGE: 30 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

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Iron	6690 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Lead	4.45 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Manganese	144 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Selenium	< 7.78 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.36 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV
Zinc	18.2 mg/Kg-dry	EPA 6010B	08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #10 Lab ID: 09083072-010B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
pH	7.05 @ 22.9°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	31.9 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	1.6 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	0.5 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	995000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #10 Lab ID: 09083072-010C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:25

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

REMARKS:

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MANAGER Clin Mek DATE: 9/11/2009

LAB ID: PA39-401

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WO#: 09083072
PAGE: 31 of 39
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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #10 Lab ID: 09083072-010D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:25

Test	Result		Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	Q	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV

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Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #10 Lab ID: 09083072-010E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:25

Test	Result	Method	Req. Limit	Analysis Start	Analysis End	Analyst *
Uranium	381.9 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	255.8 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

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PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #11 Lab ID: 09083072-011A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:40

Test	Result		Method	Req Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.174 mg/Kg-dry		EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.90 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	104 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.196 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	6.97 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	6.97 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	9310 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	5.27 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	231 mg/Kg-dry	L	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Selenium	< 7.85 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.37 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	26.9 mg/Kg-dry		EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #11 Lab ID: 09083072-011B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:40

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
pH	7.71 @ 23.3°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	< 25.3 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Nitrate	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.3 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C		09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.98 mg/Kg-dry	EPA 420.4		08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	1.2 %	SM2540G		08/21/09 15:35	08/24/09	DMB-CV
Total Solids	988000 mg/Kg	SM2540G		08/21/09 15:35	08/24/09	DMB-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.

* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Chris Mek DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 34 of 39
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #11 Lab ID: 09083072-011C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:40

Test	Result		Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry		API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry		API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #11 Lab ID: 09083072-011D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:40

Test	Result		Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry		EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	Q	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry		EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV

REMARKS:

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MANAGER Clin Mek DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034
Phone: (610) 974-8100
Fax: (610) 974-8104

Work Order: 09083072

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Benzo[a]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

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MANAGER Clin Mek DATE: 9/11/2009

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Fax: (610) 974-8104

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ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 36 of 39
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PWS ID#

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RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #11 Lab ID: 09083072-011E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:40

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
Uranium	402.4 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	269.6 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

SAMPLE: #12 Lab ID: 09083072-012A Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:55

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
Mercury	< 0.149 mg/Kg-dry	EPA 7471A		08/26/09 9:00	08/27/09	KW-CV
Arsenic	< 4.90 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Barium	69.5 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Cadmium	< 0.196 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Chromium	3.89 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Copper	3.76 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Iron	5770 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Lead	3.68 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Manganese	113 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Selenium	< 7.83 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Silver	< 1.37 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV
Zinc	16.3 mg/Kg-dry	EPA 6010B		08/26/09 10:30	08/27/09	RMD-CV

SAMPLE: #12 Lab ID: 09083072-012B Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:55

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
pH	7.77 @ 23.3°C	EPA 9045D		08/25/09 10:30	08/25/09	TLB-CV
Fluoride	< 10.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV
Chloride	< 25.1 mg/Kg-dry	EPA 300.0		08/20/09 15:49	08/21/09	LNP-CV

REMARKS:

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MANAGER Chris Mech DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

4777 Saucon Creek Road
Center Valley, PA 18034

Phone: (610) 974-8100
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Nitrate	< 10.1 mg/Kg-dry	EPA 300.0	08/20/09 15:49	08/21/09	LNP-CV
Sulfate	< 25.1 mg/Kg-dry	EPA 300.0	08/20/09 15:49	08/21/09	LNP-CV
Cyanide, Total	< 0.2 mg/Kg-dry	EPA 9010C	09/10/09 9:15	09/10/09	LNP-CV
Total Phenols	< 0.89 mg/Kg-dry	EPA 420.4	08/25/09 12:05	08/25/09	SKK-CV
Percent Moisture	0.5 %	SM2540G	08/21/09 15:35	08/24/09	DMB-CV
Total Solids	995000 mg/Kg	SM2540G	08/21/09 15:35	08/24/09	DMB-CV

SAMPLE: #12 Lab ID: 09083072-012C Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Diesel Range Organics	< 25 mg/Kg-dry	API-PHC 8015MOD		08/27/09 9:00	08/28/09	ASC-CV
Gasoline Range Organics	< 1.01 mg/Kg-dry	API-GRO 8015MOD		08/27/09 14:00	08/28/09	ASC-CV

SAMPLE: #12 Lab ID: 09083072-012D Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:55

Test	Result	Method	Reg Limit	Analysis Start	Analysis End	Analyst *
Aroclor 1016	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1221	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1232	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1242	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1248	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1254	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1260	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1262	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Aroclor 1268	< 0.03 mg/Kg-dry	EPA 8082		08/31/09 9:00	09/01/09	JJ6-CV
Naphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
2-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
1-Methylnaphthalene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV
Acenaphthylene	< 0.33 mg/Kg-dry	EPA 8270C		08/28/09 9:00	09/01/09	JJ6-CV

REMARKS:

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MANAGER Clint Mel DATE: 9/11/2009

LAB ID: PA39-401

Benchmark Analytics, Inc.

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Acenaphthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluorene	< 0.33 mg/Kg-dry	Q	EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Phenanthrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Chrysene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[b]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[k]fluoranthene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[a]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Indeno[1,2,3-cd]pyrene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Dibenz[a,h]anthracene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
Benzo[g,h,i]perylene	< 0.33 mg/Kg-dry		EPA 8270C	08/28/09 9:00	09/01/09	JJ6-CV
1,1-Dichloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Methylene chloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1-Dichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Chloroform	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,1-Trichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Carbon tetrachloride	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Benzene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,2-Dichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Trichloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Toluene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2-Trichloroethane	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Tetrachloroethylene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylene dibromide	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
Ethylbenzene	< 0.040 mg/Kg-dry		EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

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TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

m,p-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
o-Xylene	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV
1,1,2,2-Tetrachloroethane	< 0.040 mg/Kg-dry	EPA 8260B	08/20/09 9:53	08/20/09	DN-CV

SAMPLE: #12 Lab ID: 09083072-012E Grab
SAMPLED BY: Jeff Blagg Sample Time: 08/17/2009 11:55

Test	Result	Method	Req Limit	Analysis Start	Analysis End	Analyst *
Uranium	463.9 µg/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV
Uranium	310.8 pCi/Kg	EPA 200.8		08/31/09 9:00	09/03/09	JRA-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.

* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

L Value above calibration range but within annually verified linear range

Q Due to matrix effects, not all quality control parameters met acceptance criteria

MANAGER Clin Mel DATE: 9/11/2009

LAB ID: PA39-401

BENCHMARK ANALYTICS, INC.
4777 Saucon Creek Road
Center Valley, PA 18034-9004

PHONE (610) 974-8100
FAX (610) 974-8104

Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
COMPANY: Blagg Engineering Inc
ADDRESS: PO Box 87
Bloomfield, NM 87413

PHONE: (505) 632-1199
FAX:

WO#: 09083072
PAGE: 1 of 3
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #1 Lab ID: 09083072-001E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 9:10

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	155.2	± 13.65	74.55	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	787.9	± 429.7	197.5	pCi/Kg	EPA 904.0		08/28/09 8:30	09/01/09	AVB-CV

SAMPLE: #2 Lab ID: 09083072-002E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 9:25

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	150.9	± 12.53	73.16	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	724.3	± 397.2	197.6	pCi/Kg	EPA 904.0		08/28/09 8:30	09/01/09	AVB-CV

SAMPLE: #3 Lab ID: 09083072-003E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 9:40

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	182.2	± 14.76	74.55	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	629.1	± 173.8	197.5	pCi/Kg	EPA 904.0		08/28/09 8:30	09/01/09	AVB-CV

SAMPLE: #4 Lab ID: 09083072-004E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 9:55

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	177.9	± 14.24	76.82	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	7.22	± 144.3	276.1	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

SAMPLE: #5 Lab ID: 09083072-005E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 10:10

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	60.48	± 8.18	70.48	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	-95.71	± 123.0	278	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.
* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

MANAGER _____ DATE: 9/11/2009

LAB ID: PA39-401

BENCHMARK ANALYTICS, INC.
4777 Saucon Creek Road
Center Valley, PA 18034-9004

PHONE (610) 974-8100
FAX (610) 974-8104

Work Order: 09083072

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NAME: Jeff Blagg
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WO#: 09083072
PAGE: 2 of 3
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PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm
RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #6 Lab ID: 09083072-006E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 10:25

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	108.6	± 11.13	71.97	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	-67.24	± 141.9	275.9	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

SAMPLE: #7 Lab ID: 09083072-007E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 10:40

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	103.4	± 10.86	74.11	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	274.8	± 243.0	272.7	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

SAMPLE: #8 Lab ID: 09083072-008E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 10:55

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	90.08	± 10.38	76.82	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	623.1	± 229.5	276.8	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

SAMPLE: #9 Lab ID: 09083072-009E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 11:10

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	100.4	± 10.97	69.95	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	179.6	± 188.1	276.6	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

SAMPLE: #10 Lab ID: 09083072-010E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 11:25

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	89.36	± 10.25	67.49	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	9.03	± 180.4	276.8	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

REMARKS:
The above test procedures meet all the requirements of NELAC and relate only to these samples.
* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

MANAGER _____ DATE: 9/11/2009

LAB ID: PA39-401

BENCHMARK ANALYTICS, INC.
4777 Saucon Creek Road
Center Valley, PA 18034-9004

PHONE (610) 974-8100
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Work Order: 09083072

SEND DATA TO:

NAME: Jeff Blagg
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ADDRESS: PO Box 87
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WO#: 09083072
PAGE: 3 of 3
PO#:
PWS ID#

TEST REPORT

Industrial Ecosystems New Land Farm

RECEIVED FOR LAB BY: DMB DATE: 08/20/2009 9:10

SAMPLE: #11 Lab ID: 09083072-011E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 11:40

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	109.2	± 10.88	67.47	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	286.7	± 212.7	277.0	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

SAMPLE: #12 Lab ID: 09083072-012E Grab
SAMPLED BY: Jeff Blagg Sample Time 08/17/2009 11:55

Test	Result	Uncert.	MDA	Units	Method	MCL	Analysis Start	Analysis End	Analyst *
Radium-226	59.76	± 8.54	74.22	pCi/Kg	EPA 903.0		08/22/09 14:25	09/04/09	BH-CV
Radium-228	-229.8	± 205.6	276.6	pCi/Kg	EPA 904.0		09/02/09 8:20	09/09/09	AVB-CV

REMARKS:

The above test procedures meet all the requirements of NELAC and relate only to these samples.
* CV = Benchmark Analytics, Inc. Center Valley, PA; SA = Benchmark Analytics, Inc. Sayre, PA

MANAGER Clim Mel DATE: 9/11/2009

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: 3626

Sample ID MBLK 8/21 SOIL	SampType: MBLK	TestCode: 8270_S	Units: mg/Kg	Prep Date: 8/21/2009	RunNo: 43450
Client ID: PBS	Batch ID: 3626	TestNo: SW8270C	SW3550A	Analysis Date: 8/21/2009	SeqNo: 868722

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	< 0.33	0.33									
2-Methylnaphthalene	< 0.33	0.33									
Acenaphthylene	< 0.33	0.33									
Acenaphthene	< 0.33	0.33									
Fluorene	< 0.33	0.33									
Phenanthrene	< 0.33	0.33									
Anthracene	< 0.33	0.33									
Fluoranthene	< 0.33	0.33									
Pyrene	< 0.33	0.33									
Benzo[a]anthracene	< 0.33	0.33									
Chrysene	< 0.33	0.33									
Benzo[b]fluoranthene	< 0.33	0.33									
Benzo[k]fluoranthene	< 0.33	0.33									
Benzo[a]pyrene	< 0.33	0.33									
Indeno[1,2,3-cd]pyrene	< 0.33	0.33									
Dibenz[a,h]anthracene	< 0.33	0.33									
Benzo[g,h,i]perylene	< 0.33	0.33									
1-Methylnaphthalene	< 0.33	0.33									

Sample ID LFB 8/21 SOIL	SampType: LFB	TestCode: 8270_S	Units: mg/Kg	Prep Date: 8/21/2009	RunNo: 43450
Client ID: ZZZZZZ	Batch ID: 3626	TestNo: SW8270C	SW3550A	Analysis Date: 8/21/2009	SeqNo: 868723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1.32	0.33	2.50	0	53	21	133				
Acenaphthylene	1.48	0.33	2.50	0	59	33	145				
Acenaphthene	1.46	0.33	2.50	0	58	47	145				
Fluorene	1.55	0.33	2.50	0	62	59	121				
Phenanthrene	1.67	0.33	2.50	0	67	54	120				
Anthracene	1.70	0.33	2.50	0	68	27	133				

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: 3626

Sample ID LFB 8/21 SOIL	SampType: LFB	TestCode: 8270_S	Units: mg/Kg	Prep Date: 8/21/2009	RunNo: 43450
Client ID: ZZZZZZ	Batch ID: 3626	TestNo: SW8270C	SW3550A	Analysis Date: 8/21/2009	SeqNo: 868723

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoranthene	1.66	0.33	2.50	0	66	26	137				
Pyrene	1.78	0.33	2.50	0	71	52	115				
Benzo[a]anthracene	1.78	0.33	2.50	0	71	33	143				
Chrysene	1.79	0.33	2.50	0	72	17	168				
Benzo[b]fluoranthene	1.66	0.33	2.50	0	66	24	159				
Benzo[k]fluoranthene	1.80	0.33	2.50	0	72	11	162				
Benzo[a]pyrene	1.73	0.33	2.50	0	69	17	163				
Indeno[1,2,3-cd]pyrene	1.75	0.33	2.50	0	70	1	171				
Dibenz[a,h]anthracene	1.76	0.33	2.50	0	70	1	227				
Benzo[g,h,i]perylene	1.74	0.33	2.50	0	69	1	219				

Qualifiers:
- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: 3643

Sample ID MBLK 8/27 SOIL	SampType: MBLK	TestCode: 8082_S	Units: mg/Kg	Prep Date: 8/27/2009	RunNo: 43704
Client ID: PBS	Batch ID: 3643	TestNo: SW8082	SW3550A	Analysis Date: 8/27/2009	SeqNo: 874502

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	< 0.03	0.03									
Aroclor 1221	< 0.03	0.03									
Aroclor 1232	< 0.03	0.03									
Aroclor 1242	< 0.03	0.03									
Aroclor 1248	< 0.03	0.03									
Aroclor 1254	< 0.03	0.03									
Aroclor 1260	< 0.03	0.03									
Aroclor 1262	< 0.03	0.03									
Aroclor 1268	< 0.03	0.03									

Sample ID LFB 8/27 SOIL	SampType: LFB	TestCode: 8082_S	Units: mg/Kg	Prep Date: 8/27/2009	RunNo: 43704
Client ID: ZZZZZZ	Batch ID: 3643	TestNo: SW8082	SW3550A	Analysis Date: 8/27/2009	SeqNo: 874503

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	0.08	0.03	0.10	0	80	12	200				
Aroclor 1260	0.09	0.03	0.10	0	87	8	127				

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Qualifiers:

E Value above quantitation range
L Value above calibration range but within annually verified linear range
R RPD outside accepted recovery limits
J Analyte reported below quantitation limits
Q Due to matrix effects, not all quality control parameters met acceptance criteria
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: 3650

Sample ID MBLK 8/28 SOIL	SampType: MBLK	TestCode: 8270_S	Units: mg/Kg	Prep Date: 8/28/2009	RunNo: 43757
Client ID: PBS	Batch ID: 3650	TestNo: SW8270C	SW3550A	Analysis Date: 8/28/2009	SeqNo: 876102

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	< 0.33	0.33									
2-Methylnaphthalene	< 0.33	0.33									
Acenaphthylene	< 0.33	0.33									
Acenaphthene	< 0.33	0.33									
Fluorene	< 0.33	0.33									
Phenanthrene	< 0.33	0.33									
Anthracene	< 0.33	0.33									
Fluoranthene	< 0.33	0.33									
Pyrene	< 0.33	0.33									
Benzo[a]anthracene	< 0.33	0.33									
Chrysene	< 0.33	0.33									
Benzo[b]fluoranthene	< 0.33	0.33									
Benzo[k]fluoranthene	< 0.33	0.33									
Benzo[a]pyrene	< 0.33	0.33									
Indeno[1,2,3-cd]pyrene	< 0.33	0.33									
Dibenz[a,h]anthracene	< 0.33	0.33									
Benzo[g,h,i]perylene	< 0.33	0.33									
1-Methylnaphthalene	< 0.33	0.33									

Sample ID LFB 8/28 SOIL	SampType: LFB	TestCode: 8270_S	Units: mg/Kg	Prep Date: 8/28/2009	RunNo: 43757
Client ID: ZZZZZZ	Batch ID: 3650	TestNo: SW8270C	SW3550A	Analysis Date: 8/28/2009	SeqNo: 876103

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1.12	0.33	2.50	0	45	21	133				
Acenaphthylene	1.36	0.33	2.50	0	54	33	145				
Acenaphthene	1.36	0.33	2.50	0	54	47	145				
Fluorene	1.46	0.33	2.50	0	58	59	121				S Q
Phenanthrene	1.55	0.33	2.50	0	62	54	120				
Anthracene	1.55	0.33	2.50	0	62	27	133				
Fluoranthene	1.57	0.33	2.50	0	63	26	137				
Pyrene	1.61	0.33	2.50	0	64	52	115				

Qualifiers:
E Value above quantitation range
J Analyte reported below quantitation limits
L Value above calibration range but within annually verified linear range
Q Due to matrix effects, not all quality control parameters met acceptance criteria
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: 3650

Sample ID LFB 8/28 SOIL	SampType: LFB	TestCode: 8270_S	Units: mg/Kg	Prep Date: 8/28/2009	RunNo: 43757
Client ID: ZZZZZZ	Batch ID: 3650	TestNo: SW8270C	SW3550A	Analysis Date: 8/28/2009	SeqNo: 876103

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo[a]anthracene	1.64	0.33	2.50	0	66	33	143				
Chrysene	1.63	0.33	2.50	0	65	17	168				
Benzo[b]fluoranthene	2.14	0.33	2.50	0	86	24	159				
Benzo[k]fluoranthene	2.21	0.33	2.50	0	88	11	162				
Benzo[a]pyrene	2.13	0.33	2.50	0	85	17	163				
Indeno[1,2,3-cd]pyrene	2.24	0.33	2.50	0	90	1	171				
Dibenz[a,h]anthracene	2.21	0.33	2.50	0	88	1	227				
Benzo[g,h,i]perylene	2.20	0.33	2.50	0	88	1	219				

Qualifiers:
E Value above quantitation range
J Analyte reported below quantitation limits
L Value above calibration range but within annually verified linear range
Q Due to matrix effects, not all quality control parameters met acceptance criteria
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: 3655

Sample ID MBLK 8/31 SOIL	SampType: MBLK	TestCode: 8082_S	Units: mg/Kg	Prep Date: 8/31/2009	RunNo: 43764
Client ID: PBS	Batch ID: 3655	TestNo: SW8082	SW3550A	Analysis Date: 8/31/2009	SeqNo: 876308

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	< 0.03	0.03									
Aroclor 1221	< 0.03	0.03									
Aroclor 1232	< 0.03	0.03									
Aroclor 1242	< 0.03	0.03									
Aroclor 1248	< 0.03	0.03									
Aroclor 1254	< 0.03	0.03									
Aroclor 1260	< 0.03	0.03									
Aroclor 1262	< 0.03	0.03									
Aroclor 1268	< 0.03	0.03									

Sample ID LFB 8/31 SOIL	SampType: LFB	TestCode: 8082_S	Units: mg/Kg	Prep Date: 8/31/2009	RunNo: 43764
Client ID: ZZZZZZ	Batch ID: 3655	TestNo: SW8082	SW3550A	Analysis Date: 8/31/2009	SeqNo: 876309

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	0.10	0.03	0.10	0	101	12	200				
Aroclor 1260	0.09	0.03	0.10	0	85	8	127				

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: ES 083109 A

Sample ID	MBLK ES 083109 A	SampType:	MBLK	TestCode:	U_200.8	Units:	µg/Kg	Prep Date:		RunNo:	43922
Client ID:	PBW	Batch ID:	ES 083109 A	TestNo:	E200.8			Analysis Date:	8/31/2009	SeqNo:	880027

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	< 239.1	239.1									

Sample ID	LFB ES 083109 A	SampType:	LFB	TestCode:	U_200.8	Units:	µg/Kg	Prep Date:		RunNo:	43922
Client ID:	ZZZZZZ	Batch ID:	ES 083109 A	TestNo:	E200.8			Analysis Date:	8/31/2009	SeqNo:	880028

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	19450	238.2	19060	0	102	85	115				

Sample ID	09083072-001E MS	SampType:	MS	TestCode:	U_200.8	Units:	µg/Kg	Prep Date:		RunNo:	43922
Client ID:	#1	Batch ID:	ES 083109 A	TestNo:	E200.8			Analysis Date:	8/31/2009	SeqNo:	880034

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Uranium	19250	242.1	19370	568.8	96	70	130				

Qualifiers:
- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: OS 082609 A

Sample ID OS 082609A MBLK	SampType: MBLK	TestCode: ME_ICP_S	Units: mg/Kg	Prep Date:	RunNo: 43606
Client ID: PBS	Batch ID: OS 082609	TestNo: SW6010B		Analysis Date: 8/26/2009	SeqNo: 872493

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 4.92	4.92									
Barium	< 3.93	3.93									
Cadmium	< 0.197	0.197									
Chromium	< 1.97	1.97									
Copper	< 1.97	1.97									
Iron	< 19.7	19.7									
Lead	< 1.97	1.97									
Manganese	< 1.97	1.97									
Selenium	< 7.87	7.87									
Silver	< 1.38	1.38									
Zinc	< 3.93	3.93									

Sample ID OS 082609A LFB	SampType: LFB	TestCode: ME_ICP_S	Units: mg/Kg	Prep Date:	RunNo: 43606
Client ID: ZZZZZZ	Batch ID: OS 082609	TestNo: SW6010B		Analysis Date: 8/26/2009	SeqNo: 872494

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	41.2	4.86	38.9	0	106	80	120				
Barium	38.5	3.89	38.9	0	99	80	120				
Cadmium	39.1	0.194	38.9	0	101	80	120				E
Chromium	37.3	1.94	38.9	0	96	80	120				
Copper	38.7	1.94	38.9	0	100	80	120				
Iron	3770	19.4	3920	0	96	80	120				E
Lead	38.7	1.94	38.9	0	100	80	120				
Manganese	38.2	1.94	38.9	0	98	80	120				
Selenium	34.2	7.77	38.9	0	88	80	120				
Silver	18.2	1.36	19.4	0	94	80	120				
Zinc	39.4	3.89	38.9	0	101	80	120				

Qualifiers:
E Value above quantitation range
J Analyte reported below quantitation limits
L Value above calibration range but within annually verified linear range
Q Due to matrix effects, not all quality control parameters met acceptance criteria
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: OS 082609 A

Sample ID 09082996-005A MS	SampType: MS	TestCode: ME_ICP_S	Units: mg/Kg	Prep Date:	RunNo: 43606
Client ID: ZZZZZZ	Batch ID: OS 082609	TestNo: SW6010B		Analysis Date: 8/26/2009	SeqNo: 872497

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	204	1.83	36.5	128	209	75	125				S E 4x

Sample ID 09082996-005A MSD	SampType: MSD	TestCode: ME_ICP_S	Units: mg/Kg	Prep Date:	RunNo: 43606
Client ID: ZZZZZZ	Batch ID: OS 082609	TestNo: SW6010B		Analysis Date: 8/26/2009	SeqNo: 872498

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	3.1%	1.83	36.5	128	227	75	125	204	3	20	S E

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43249

Sample ID LCS	SampType: LCS	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: LCSW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863807

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.99	0.10	3.00	0	100	90	110				
Chloride	14.7	0.25	15.0	0	98	90	110				
Sulfate	15.0	0.25	15.0	0	100	90	110				
Nitrate	3.01	0.10	3.00	0	100	90	110				

Sample ID MBLK	SampType: MBLK	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: PBW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863808

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	< 0.10	0.10									
Chloride	< 0.25	0.25									
Sulfate	< 0.25	0.25									
Nitrate	< 0.10	0.10									

Sample ID 09082764-001AMS	SampType: MS	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: ZZZZZZ	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863815

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.59	0.10	5.00	1.55	1	90	110				S
Chloride	31.0	0.25	25.0	5.07	104	90	110				
Sulfate	11.9	0.25	25.0	11.7	1	90	110				S
Nitrate	2.50	0.10	5.00	2.62	-3	90	110				S

Sample ID MBLK	SampType: MBLK	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: PBW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	< 0.10	0.10									
Chloride	< 0.25	0.25									
Sulfate	< 0.25	0.25									

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43249

Sample ID MBLK	SampType: MBLK	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: PBW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate	< 0.10	0.10									

Sample ID LCS	SampType: LCS	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: LCSW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863828

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.25	0.10	3.00	0	108	90	110				
Chloride	15.1	0.25	15.0	0	101	90	110				
Sulfate	15.3	0.25	15.0	0	102	90	110				
Nitrate	3.08	0.10	3.00	0	103	90	110				

Sample ID MBLK	SampType: MBLK	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: PBW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863829

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	< 0.10	0.10									
Chloride	< 0.25	0.25									
Sulfate	< 0.25	0.25									
Nitrate	< 0.10	0.10									

Sample ID MBLK	SampType: MBLK	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: PBW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863844

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	< 0.10	0.10									
Chloride	< 0.25	0.25									
Sulfate	< 0.25	0.25									
Nitrate	< 0.10	0.10									

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43249

Sample ID LCS	SampType: LCS	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: LCSW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 864539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.10	0.10	3.00	0	103	90	110				
Chloride	14.9	0.25	15.0	0	99	90	110				
Sulfate	14.6	0.25	15.0	0	97	90	110				
Nitrate	3.02	0.10	3.00	0	101	90	110				

Sample ID MBLK	SampType: MBLK	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: PBW	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 864540

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	< 0.10	0.10									
Chloride	< 0.25	0.25									
Sulfate	< 0.25	0.25									
Nitrate	< 0.10	0.10									

Sample ID 09082534-002GMS	SampType: MS	TestCode: ANION_300.0	Units: mg/L	Prep Date:	RunNo: 43249
Client ID: ZZZZZZ	Batch ID: R43249	TestNo: E300.0		Analysis Date: 8/20/2009	SeqNo: 863820

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	124	0.10	125	1.29	98	80	120				
Chloride	704	0.25	625	38.4	106	80	120				
Sulfate	636	0.25	625	7.17	101	80	120				
Nitrate	131	0.10	125	0	105	80	120				

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43264

Sample ID SAND BLANK	SampType: MBLK	TestCode: 8260_S	Units: mg/Kg	Prep Date:	RunNo: 43264
Client ID: PBS	Batch ID: R43264	TestNo: SW8260B		Analysis Date: 8/20/2009	SeqNo: 864137

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethylene	< 0.040	0.040									
Methylene chloride	< 0.040	0.040									
1,1-Dichloroethane	< 0.040	0.040									
Chloroform	< 0.040	0.040									
1,1,1-Trichloroethane	< 0.040	0.040									
Carbon tetrachloride	< 0.040	0.040									
Benzene	< 0.040	0.040									
1,2-Dichloroethane	< 0.040	0.040									
Trichloroethylene	< 0.040	0.040									
Toluene	< 0.040	0.040									
1,1,2-Trichloroethane	< 0.040	0.040									
Tetrachloroethylene	< 0.040	0.040									
Ethylene dibromide	< 0.040	0.040									
Ethylbenzene	< 0.040	0.040									
m,p-Xylene	< 0.040	0.040									
o-Xylene	< 0.040	0.040									
1,1,2,2-Tetrachloroethane	< 0.040	0.040									
Naphthalene	< 0.040	0.040									

Sample ID 20 ppb MS	SampType: MS	TestCode: 8260_W	Units: mg/L	Prep Date:	RunNo: 43264
Client ID: ZZZZZZ	Batch ID: R43264	TestNo: SW8260B		Analysis Date: 8/20/2009	SeqNo: 864129

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethylene	0.024	0.001	0.020	0	120	5	234				
Methylene chloride	0.021	0.001	0.020	0	103	5	221				
1,1-Dichloroethane	0.022	0.001	0.020	0	110	59	155				
Chloroform	0.020	0.001	0.020	0	101	51	138				
1,1,1-Trichloroethane	0.022	0.001	0.020	0	111	52	162				
Carbon tetrachloride	0.023	0.001	0.020	0	114	70	140				
Benzene	0.021	0.001	0.020	0	104	37	151				
1,2-Dichloroethane	0.020	0.001	0.020	0	99	49	155				

Qualifiers:
E Value above quantitation range
J Analyte reported below quantitation limits
L Value above calibration range but within annually verified linear range
Q Due to matrix effects, not all quality control parameters met acceptance criteria
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43264

Sample ID 20 ppb MS	SampType: MS	TestCode: 8260_W	Units: mg/L	Prep Date:	RunNo: 43264
Client ID: ZZZZZZ	Batch ID: R43264	TestNo: SW8260B		Analysis Date: 8/20/2009	SeqNo: 864129

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethylene	0.022	0.001	0.020	0	110	71	157				
Toluene	0.022	0.001	0.020	0	108	47	150				
1,1,2-Trichloroethane	0.020	0.001	0.020	0	98	52	150				
Tetrachloroethylene	0.023	0.001	0.020	0	113	64	148				
Ethylene dibromide	0.018	0.001	0.020	0	91	5	200				
Ethylbenzene	0.022	0.001	0.020	0	111	37	162				
m,p-Xylene	0.042	0.001	0.040	0	106	5	200				
o-Xylene	0.021	0.001	0.020	0	106	5	200				
1,1,2,2-Tetrachloroethane	0.018	0.001	0.020	0	91	46	157				
Naphthalene	0.019	0.001	0.020	0	97	5	200				

Sample ID 20 ppb MSD	SampType: MSD	TestCode: 8260_W	Units: mg/L	Prep Date:	RunNo: 43264
Client ID: ZZZZZZ	Batch ID: R43264	TestNo: SW8260B		Analysis Date: 8/20/2009	SeqNo: 864130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethylene	0.024	0.001	0.020	0	120	5	234				
Methylene chloride	0.020	0.001	0.020	0	101	5	221				
1,1-Dichloroethane	0.023	0.001	0.020	0	114	59	155				
Chloroform	0.021	0.001	0.020	0	103	51	138				
1,1,1-Trichloroethane	0.023	0.001	0.020	0	114	52	162				
Carbon tetrachloride	0.023	0.001	0.020	0	115	70	140				
Benzene	0.021	0.001	0.020	0	105	37	151				
1,2-Dichloroethane	0.020	0.001	0.020	0	100	49	155				
Trichloroethylene	0.022	0.001	0.020	0	112	71	157				
Toluene	0.022	0.001	0.020	0	110	47	150				
1,1,2-Trichloroethane	0.020	0.001	0.020	0	102	52	150				
Tetrachloroethylene	0.023	0.001	0.020	0	116	64	148				
Ethylene dibromide	0.019	0.001	0.020	0	95	5	200				
Ethylbenzene	0.022	0.001	0.020	0	112	37	162				
m,p-Xylene	0.043	0.001	0.040	0	108	5	200				
o-Xylene	0.022	0.001	0.020	0	108	5	200				

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43264

Sample ID 20 ppb MSD	SampType: MSD	TestCode: 8260_W	Units: mg/L	Prep Date:	RunNo: 43264
Client ID: ZZZZZZ	Batch ID: R43264	TestNo: SW8260B		Analysis Date: 8/20/2009	SeqNo: 864130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	0.019	0.001	0.020	0	97	46	157				
Naphthalene	0.020	0.001	0.020	0	102	5	200				

Sample ID Method Blank	SampType: MBLK	TestCode: 8260_W	Units: mg/L	Prep Date:	RunNo: 43264
Client ID: PBW	Batch ID: R43264	TestNo: SW8260B		Analysis Date: 8/20/2009	SeqNo: 864131

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethylene	< 0.001	0.001									
Methylene chloride	< 0.001	0.001									
1,1-Dichloroethane	< 0.001	0.001									
Chloroform	< 0.001	0.001									
1,1,1-Trichloroethane	< 0.001	0.001									
Carbon tetrachloride	< 0.001	0.001									
Benzene	< 0.001	0.001									
1,2-Dichloroethane	< 0.001	0.001									
Trichloroethylene	< 0.001	0.001									
Toluene	< 0.001	0.001									
1,1,2-Trichloroethane	< 0.001	0.001									
Tetrachloroethylene	< 0.001	0.001									
Ethylene dibromide	< 0.001	0.001									
Ethylbenzene	< 0.001	0.001									
m,p-Xylene	< 0.001	0.001									
o-Xylene	< 0.001	0.001									
1,1,2,2-Tetrachloroethane	< 0.001	0.001									
Naphthalene	< 0.001	0.001									

Qualifiers:
E Value above quantitation range
J Analyte reported below quantitation limits
L Value above calibration range but within annually verified linear range
Q Due to matrix effects, not all quality control parameters met acceptance criteria
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43383

Sample ID MB-R43383	SampType: MBLK	TestCode: PMOIST	Units: %	Prep Date:	RunNo: 43383
Client ID: PBS	Batch ID: R43383	TestNo: D2216		Analysis Date: 8/21/2009	SeqNo: 866691

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	< 0.0	0.0									

Sample ID MB2	SampType: MBLK	TestCode: PMOIST	Units: %	Prep Date:	RunNo: 43383
Client ID: PBS	Batch ID: R43383	TestNo: D2216		Analysis Date: 8/21/2009	SeqNo: 866751

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	< 0.0	0.0									

Sample ID MB3	SampType: MBLK	TestCode: PMOIST	Units: %	Prep Date:	RunNo: 43383
Client ID: PBS	Batch ID: R43383	TestNo: D2216		Analysis Date: 8/21/2009	SeqNo: 866855

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	< 0.0	0.0									

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43461

Sample ID	MBlank / Solid Blank	SampType: MBLK	TestCode: PHENOL_420	Units: mg/Kg	Prep Date:	RunNo: 43461
Client ID:	PBS	Batch ID: R43461	TestNo: E420.2		Analysis Date: 8/25/2009	SeqNo: 868817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Phenols	< 0.004	0.004									

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43616

Sample ID MBLK SOIL	SampType: MBLK	TestCode: GRO_S	Units: mg/Kg	Prep Date:	RunNo: 43616
Client ID: PBS	Batch ID: R43616	TestNo: APIGRO		Analysis Date: 8/27/2009	SeqNo: 872683

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	< 1.00	1.00									

Sample ID LFB SOIL	SampType: LFB	TestCode: GRO_S	Units: mg/Kg	Prep Date:	RunNo: 43616
Client ID: ZZZZZZ	Batch ID: R43616	TestNo: APIGRO		Analysis Date: 8/27/2009	SeqNo: 872684

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	7.41	1.00	10.00	0	74	50	100				

Sample ID LFBD SOIL	SampType: LFBD	TestCode: GRO_S	Units: mg/Kg	Prep Date:	RunNo: 43616
Client ID: ZZZZZZ	Batch ID: R43616	TestNo: APIGRO		Analysis Date: 8/27/2009	SeqNo: 872685

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline Range Organics	8.22	1.00	10.00	0	82	50	100	7.41	10	20	

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43627

Sample ID MBLK SOIL 8/27	SampType: MBLK	TestCode: DRO_S	Units: mg/Kg	Prep Date:	RunNo: 43627
Client ID: PBS	Batch ID: R43627	TestNo: APIPHC		Analysis Date: 8/27/2009	SeqNo: 872865

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	< 25	25									

Sample ID LFB SOIL	SampType: LFB	TestCode: DRO_S	Units: mg/Kg	Prep Date:	RunNo: 43627
Client ID: ZZZZZZ	Batch ID: R43627	TestNo: APIPHC		Analysis Date: 8/27/2009	SeqNo: 872866

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	399	25	500	0	80	70	130				

Sample ID LFBD SOIL	SampType: LFBD	TestCode: DRO_S	Units: mg/Kg	Prep Date:	RunNo: 43627
Client ID: ZZZZZZ	Batch ID: R43627	TestNo: APIPHC		Analysis Date: 8/27/2009	SeqNo: 872867

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel Range Organics	396	25	500	0	79	70	130	399	1	20	

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43659

Sample ID MB-R43659	SampType: MBLK	TestCode: CN_TT_9010	Units: mg/Kg	Prep Date:	RunNo: 43659
Client ID: PBS	Batch ID: R43659	TestNo: SW9010C		Analysis Date: 8/28/2009	SeqNo: 873525

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	< 0.2	0.2									

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Qualifiers:

E Value above quantitation range
J Analyte reported below quantitation limits
L Value above calibration range but within annually verified linear range
Q Due to matrix effects, not all quality control parameters met acceptance criteria
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43887

Sample ID BLANK	SampType: MBLK	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: PBW	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879211

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	0.67										

Sample ID LCS	SampType: LCS	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: LCSW	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879213

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	11.31		11.19	0	101	57	143				

Sample ID LFB-1	SampType: LFB	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: ZZZZZZ	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879214

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	24.33		22.39	0	109	57	143				

Sample ID LFB-2	SampType: LFB	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: ZZZZZZ	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879215

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	19.51		22.39	0	87	57	143				

Sample ID LFBD-1	SampType: LFBD	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: ZZZZZZ	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879216

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	19.08		22.39	0	85	57	143		24	0	

Sample ID LFBD-2	SampType: LFBD	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: ZZZZZZ	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879217

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R43887

Sample ID LFBD-2	SampType: LFBD	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 43887
Client ID: ZZZZZZ	Batch ID: R43887	TestNo: E904.0		Analysis Date: 8/28/2009	SeqNo: 879217

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	26.26		22.39	0	117	57	143		8	0	

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R44011

Sample ID BLANK	SampType: MBLK	TestCode: RA226_903.0	Units: pCi/L	Prep Date:	RunNo: 44011
Client ID: PBW	Batch ID: R44011	TestNo: E903.0		Analysis Date: 8/22/2009	SeqNo: 882137

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-226	0.02										

Sample ID LCS	SampType: LCS	TestCode: RA226_903.0	Units: pCi/L	Prep Date:	RunNo: 44011
Client ID: LCSW	Batch ID: R44011	TestNo: E903.0		Analysis Date: 8/22/2009	SeqNo: 882139

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-226	9.22		10.63	0	87	74	126				

Sample ID LCS DUP 1	SampType: LCSD	TestCode: RA226_903.0	Units: pCi/L	Prep Date:	RunNo: 44011
Client ID: LCSS02	Batch ID: R44011	TestNo: E903.0		Analysis Date: 8/22/2009	SeqNo: 882140

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-226	9.94		10.63	0	94	74	126		8	0	

Sample ID LCS DUP 2	SampType: LCSD	TestCode: RA226_903.0	Units: pCi/L	Prep Date:	RunNo: 44011
Client ID: LCSS02	Batch ID: R44011	TestNo: E903.0		Analysis Date: 8/22/2009	SeqNo: 882141

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-226	10.81		10.63	0	102	74	126		16	0	

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R44138

Sample ID BLANK	SampType: MBLK	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: PBW	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885815

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	1.22										

Sample ID BLANK-RC	SampType: MBLK	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: PBW	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885816

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	0.59										

Sample ID LCS	SampType: LCS	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: LCSW	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885817

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	12.29		11.19	0	110	57	143				

Sample ID LFB-1	SampType: LFB	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: ZZZZZZ	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	21.14		22.39	0	94	57	143				

Sample ID LFB-2	SampType: LFB	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: ZZZZZZ	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885819

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	23.72		22.39	0	106	57	143				

Sample ID LFBD-1	SampType: LFBD	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: ZZZZZZ	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885820

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R44138

Sample ID LFBD-1	SampType: LFBD	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: ZZZZZZ	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885820

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	14.30		22.39	0	64	57	143		39	0	

Sample ID LFBD-2	SampType: LFBD	TestCode: RA228_904.0	Units: pCi/L	Prep Date:	RunNo: 44138
Client ID: ZZZZZZ	Batch ID: R44138	TestNo: E904.0		Analysis Date: 9/2/2009	SeqNo: 885821

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Radium-228	21.30		22.39	0	95	57	143		1	0	

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: R44173

Sample ID MB-R44173	SampType: MBLK	TestCode: CN_TT_9010	Units: mg/Kg	Prep Date:	RunNo: 44173
Client ID: PBS	Batch ID: R44173	TestNo: SW9010C		Analysis Date: 9/10/2009	SeqNo: 886584

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	< 0.2	0.2									

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Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Blagg Engineering Inc
Work Order: 09083072
Project: Industrial Ecosystems New Land Farm

ANALYTICAL QC SUMMARY REPORT

BatchID: S 082609

Sample ID	MB S 082609	SampType:	MBLK	TestCode:	HG_7471_S	Units:	mg/Kg	Prep Date:		RunNo:	43599
Client ID:	PBS	Batch ID:	S 082609	TestNo:	SW7471A			Analysis Date:	8/26/2009	SeqNo:	872283

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.128	0.128									

Sample ID	LFB S 082609	SampType:	LFB	TestCode:	HG_7471_S	Units:	mg/Kg	Prep Date:		RunNo:	43599
Client ID:	ZZZZZZ	Batch ID:	S 082609	TestNo:	SW7471A			Analysis Date:	8/26/2009	SeqNo:	872284

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.64	0.165	1.65	0	99	80	120				

Sample ID	09083693-001A MS	SampType:	MS	TestCode:	HG_7471_S	Units:	mg/Kg	Prep Date:		RunNo:	43599
Client ID:	ZZZZZZ	Batch ID:	S 082609	TestNo:	SW7471A			Analysis Date:	8/26/2009	SeqNo:	872286

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.83	0.179	1.79	0	102	50	150				

Sample ID	09083693-001A MSD	SampType:	MSD	TestCode:	HG_7471_S	Units:	mg/Kg	Prep Date:		RunNo:	43599
Client ID:	ZZZZZZ	Batch ID:	S 082609	TestNo:	SW7471A			Analysis Date:	8/26/2009	SeqNo:	872287

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.76	0.174	1.74	0	101	50	150	1.83	4	20	

Qualifiers:

- E Value above quantitation range
- J Analyte reported below quantitation limits
- L Value above calibration range but within annually verified linear range
- Q Due to matrix effects, not all quality control parameters met acceptance criteria
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Benchmark Analytics Inc
4777 Saucon Creek Road
Center Valley, PA 18034-9004
Phone (610) 974-8100 Fax (610) 974-8104

CHAIN OF CUSTODY RECORD

Page 1 of 1

W/O#: 09083072

Benchmark Analytics Inc
35 Stokes Avenue
East Stroudsburg, PA 18301
(570) 421-5122 Fax (570) 421-5707

Attn: JEFF BLAGG
Address: BLAGG ENGINEERING INC.
P.O. BOX 87
BLOOMFIELD, NM 87413

Phone: 505-632-1199
Fax:
E-Mail: Jeffcblagg@AOL.com

Sampler's Name / Signature: JEFF BLAGG / Jeff Blagg

PO Number:

Project Name: INDUSTRIAL ECOSYSTEMS NEW LANDFARM

Site #	Date	Time	G	C	Sample Identification	SEE Attached List	MATRIX *	(P)lastic or (G)lass	Temperature (°C)	Volume of Sample	No. of Containers	Preservative	Turn Around Time	Sample	Fraction
1	8/17/09	0910			#1	X	S	G		Rec	1	cool		001	A-E *
2	"	0925			#2	X	S	G		for	1	"		002	
3	"	0940			#3	X	S	G		0	1	"		003	
4	"	0955			#4	X	S	G			1	"		004	
5	"	1010			#5	X	S	G			1	"		005	
6	"	1025			#6	X	S	G			1	"		006	
7	"	1040			#7	X	S	G			1	"		007	
8	"	1055			#8	X	S	G			1	"		008	
9	"	1110			#9	X	S	G			1	"		009	
10	"	1125			#10	X	S	G			1	"		010	
11	"	1140			#11	X	S	G			1	"		011	
12	"	1155			#12	X	S	G		↓	1	"		012	↓

Relinquished By: (Sig) Jeff Blagg — Date: 8/19/09 Time: 1530 — Received By: (Sig)

Relinquished By: (Sig) — Date: Time: — Received By: (Sig)

Relinquished By: (Sig) Fedex — Date: 8.20.09 Time: 9:10 — Received For Laboratory By: (Sig) D Barbee

Faxed ☐ e-mailed ☐ — Date: Time: — By: (Sig)

Special Instructions: From attached list: * Metals = A fraction; organics = D; rads = E; inorganics = B; Petroleum = C

TRC/pH Fee:
Compositor Fee:
Pickup Fee:
SDWA Form: PWS ID#:

Condition upon arrival: good on ice 14.9°C Cooler

* Matrix: D= DRINKING WATER W= WASTEWATER S= SOLID O=OTHER

Implemented on 07/09/2007

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, December 28, 2010

Jeff Blagg
Blagg Engineering
P. O. Box 87
Bloomfield, NM 87413
TEL: (505) 632-1199
FAX (505) 632-3903

RE: Industrial Ecosystems New LF

Order No.: 1012730

Dear Jeff Blagg:

Hall Environmental Analysis Laboratory, Inc. received 12 sample(s) on 12/20/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 1
Lab Order:	1012730	**Collection Date:**	12/16/2010 10:05:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/22/2010 7:51:12 PM
Surr: 1,2-Dichloroethane-d4	83.0	77.8-97.5		%REC	1	12/22/2010 7:51:12 PM
Surr: 4-Bromofluorobenzene	93.3	82.2-105		%REC	1	12/22/2010 7:51:12 PM
Surr: Dibromofluoromethane	85.2	63.7-133		%REC	1	12/22/2010 7:51:12 PM
Surr: Toluene-d8	100	87.2-105		%REC	1	12/22/2010 7:51:12 PM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Estimated value
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- NC Non-Chlorinated
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitation Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 2
Lab Order:	1012730	**Collection Date:**	12/16/2010 10:20:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-02	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/22/2010 10:40:01 PM
Surr: 1,2-Dichloroethane-d4	81.2	77.8-97.5		%REC	1	12/22/2010 10:40:01 PM
Surr: 4-Bromofluorobenzene	94.1	82.2-105		%REC	1	12/22/2010 10:40:01 PM
Surr: Dibromofluoromethane	85.1	63.7-133		%REC	1	12/22/2010 10:40:01 PM
Surr: Toluene-d8	96.3	87.2-105		%REC	1	12/22/2010 10:40:01 PM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 3
Lab Order:	1012730	**Collection Date:**	12/16/2010 10:35:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-03	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/22/2010 11:08:06 PM
Surr: 1,2-Dichloroethane-d4	81.7	77.8-97.5		%REC	1	12/22/2010 11:08:06 PM
Surr: 4-Bromofluorobenzene	94.0	82.2-105		%REC	1	12/22/2010 11:08:06 PM
Surr: Dibromofluoromethane	85.6	63.7-133		%REC	1	12/22/2010 11:08:06 PM
Surr: Toluene-d8	102	87.2-105		%REC	1	12/22/2010 11:08:06 PM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 4
Lab Order:	1012730	**Collection Date:**	12/16/2010 10:50:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-04	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/22/2010 11:36:12 PM
Surr: 1,2-Dichloroethane-d4	80.2	77.8-97.5		%REC	1	12/22/2010 11:36:12 PM
Surr: 4-Bromofluorobenzene	91.1	82.2-105		%REC	1	12/22/2010 11:36:12 PM
Surr: Dibromofluoromethane	85.0	63.7-133		%REC	1	12/22/2010 11:36:12 PM
Surr: Toluene-d8	95.1	87.2-105		%REC	1	12/22/2010 11:36:12 PM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Estimated value
J	Analyte detected below quantitation limits
NC	Non-Chlorinated
PQL	Practical Quantitation Limit
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 5
Lab Order:	1012730	**Collection Date:**	12/16/2010 11:05:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-05	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 12:04:19 AM
Surr: 1,2-Dichloroethane-d4	82.2	77.8-97.5		%REC	1	12/23/2010 12:04:19 AM
Surr: 4-Bromofluorobenzene	92.3	82.2-105		%REC	1	12/23/2010 12:04:19 AM
Surr: Dibromofluoromethane	87.2	63.7-133		%REC	1	12/23/2010 12:04:19 AM
Surr: Toluene-d8	97.7	87.2-105		%REC	1	12/23/2010 12:04:19 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 6
Lab Order:	1012730	**Collection Date:**	12/16/2010 11:25:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-06	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 12:32:26 AM
Surr: 1,2-Dichloroethane-d4	80.2	77.8-97.5		%REC	1	12/23/2010 12:32:26 AM
Surr: 4-Bromofluorobenzene	92.6	82.2-105		%REC	1	12/23/2010 12:32:26 AM
Surr: Dibromofluoromethane	84.4	63.7-133		%REC	1	12/23/2010 12:32:26 AM
Surr: Toluene-d8	96.9	87.2-105		%REC	1	12/23/2010 12:32:26 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 7
Lab Order:	1012730	**Collection Date:**	12/16/2010 11:45:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-07	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 1:00:32 AM
Surr: 1,2-Dichloroethane-d4	81.7	77.8-97.5		%REC	1	12/23/2010 1:00:32 AM
Surr: 4-Bromofluorobenzene	91.2	82.2-105		%REC	1	12/23/2010 1:00:32 AM
Surr: Dibromofluoromethane	85.7	63.7-133		%REC	1	12/23/2010 1:00:32 AM
Surr: Toluene-d8	96.4	87.2-105		%REC	1	12/23/2010 1:00:32 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 8
Lab Order:	1012730	**Collection Date:**	12/16/2010 12:10:00 AM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-08	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 1:28:38 AM
Surr: 1,2-Dichloroethane-d4	83.5	77.8-97.5		%REC	1	12/23/2010 1:28:38 AM
Surr: 4-Bromofluorobenzene	91.7	82.2-105		%REC	1	12/23/2010 1:28:38 AM
Surr: Dibromofluoromethane	85.6	63.7-133		%REC	1	12/23/2010 1:28:38 AM
Surr: Toluene-d8	98.2	87.2-105		%REC	1	12/23/2010 1:28:38 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 9
Lab Order:	1012730	**Collection Date:**	12/16/2010 12:30:00 PM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-09	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 1:56:48 AM
Surr: 1,2-Dichloroethane-d4	81.4	77.8-97.5		%REC	1	12/23/2010 1:56:48 AM
Surr: 4-Bromofluorobenzene	94.3	82.2-105		%REC	1	12/23/2010 1:56:48 AM
Surr: Dibromofluoromethane	84.2	63.7-133		%REC	1	12/23/2010 1:56:48 AM
Surr: Toluene-d8	97.6	87.2-105		%REC	1	12/23/2010 1:56:48 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 10
Lab Order:	1012730	**Collection Date:**	12/16/2010 12:50:00 PM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-10	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 2:24:54 AM
Surr: 1,2-Dichloroethane-d4	81.8	77.8-97.5		%REC	1	12/23/2010 2:24:54 AM
Surr: 4-Bromofluorobenzene	93.1	82.2-105		%REC	1	12/23/2010 2:24:54 AM
Surr: Dibromofluoromethane	84.0	63.7-133		%REC	1	12/23/2010 2:24:54 AM
Surr: Toluene-d8	95.9	87.2-105		%REC	1	12/23/2010 2:24:54 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 11
Lab Order:	1012730	**Collection Date:**	12/16/2010 1:05:00 PM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-11	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 2:52:52 AM
Surr: 1,2-Dichloroethane-d4	80.7	77.8-97.5		%REC	1	12/23/2010 2:52:52 AM
Surr: 4-Bromofluorobenzene	94.1	82.2-105		%REC	1	12/23/2010 2:52:52 AM
Surr: Dibromofluoromethane	85.2	63.7-133		%REC	1	12/23/2010 2:52:52 AM
Surr: Toluene-d8	96.6	87.2-105		%REC	1	12/23/2010 2:52:52 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Dec-10*

CLIENT:	Blagg Engineering	**Client Sample ID:**	Background 12
Lab Order:	1012730	**Collection Date:**	12/16/2010 1:20:00 PM
Project:	Industrial Ecosystems New LF	**Date Received:**	12/20/2010
Lab ID:	1012730-12	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **MMS**
Vinyl chloride	ND	0.050		mg/Kg	1	12/23/2010 3:20:53 AM
Surr: 1,2-Dichloroethane-d4	83.0	77.8-97.5		%REC	1	12/23/2010 3:20:53 AM
Surr: 4-Bromofluorobenzene	90.9	82.2-105		%REC	1	12/23/2010 3:20:53 AM
Surr: Dibromofluoromethane	87.7	63.7-133		%REC	1	12/23/2010 3:20:53 AM
Surr: Toluene-d8	95.8	87.2-105		%REC	1	12/23/2010 3:20:53 AM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	12/22/2010

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Blagg Engineering
Project: Industrial Ecosystems New LF **Work Order:** 1012730

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 418.1: TPH											
Sample ID: MB-24962		*MBLK*				Batch ID:	**24962**	Analysis Date:			12/22/2010
Petroleum Hydrocarbons, TR	ND	mg/Kg	20								
Sample ID: LCS-24962		*LCS*				Batch ID:	**24962**	Analysis Date:			12/22/2010
Petroleum Hydrocarbons, TR	98.66	mg/Kg	20	100	0	98.7	86.8	116			
Sample ID: LCSD-24962		*LCSD*				Batch ID:	**24962**	Analysis Date:			12/22/2010
Petroleum Hydrocarbons, TR	97.38	mg/Kg	20	100	0	97.4	86.8	116	1.31	16.2	
Method: EPA Method 8260B: VOLATILES											
Sample ID: MBLK-24970		*MBLK*				Batch ID:	**24960**	Analysis Date:			12/22/2010 6:55:01 PM
Vinyl chloride	ND	mg/Kg	0.050								

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name BLAGG | Date Received: 12/20/2010

Work Order Number 1012730 | Received by: AMG

Checklist completed by: [signature] Signature 12/20/10 Date | Sample ID labels checked by: MG Initials

Matrix: | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:
Water - VOA vials have zero headspace? No VOA vials submitted	☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	<2 >12 unless noted below.
Container/Temp Blank temperature?	1.6°	<6° C Acceptable If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: BLAGG ENGINEERING INC.

Mailing Address: P.O. BOX 87
BLOOMFIELD NM 87413

Phone #: 505-632-1199

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: INDUSTRIAL ECOSYSTEMS NEW L.F.

Project #:

Project Manager: JEFF BLAGG

Sampler: JEFF BLAGG

On Ice: ☒ Yes ☐ No

Sample Temperature: 12.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	VINYL CHLORIDE				Air Bubbles (Y or N)
12/16/2010	1005	SOIL	BACKGROUND #1	4oz x 1	COOL	1012730-1				X								X				
"	1020	"	BACK GROUND #2	"	"	-2				X								X				
	1035	"	BACK GROUND #3	"	"	-3				X								X				
	1050	"	BACK GROUND #4	"	"	-4				X								X				
	1105	"	BACK GROUND #5	"	"	-5				X								X				
	1125	"	BACK GROUND #6	"	"	-6				X								X				
	1145	"	BACK GROUND #7	"	"	-7				X								X				
"	1210	"	BACK GROUND #8	"	"	-8				X								X				
"	1230	"	BACK GROUND #9	"	"	-9				X								X				
"	1250	"	BACK GROUND #10	"	"	-10				X								X				
"	1305	"	BACK GROUND #11	"	"	-11				X								X				
"	1320	"	BACK GROUND #12	"	"	-12				X								X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/16/2010	1530 1320	J H Blagg			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				12/17	1100

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN (SPCC Plan)

FACILITY:
Crowe Blanco Properties, LLC.
NW 1/4 Sec. 16, T29N, R9W, N.M.P.M.
San Juan County, New Mexico 87412
N36° 43' 39", W 107° 47' 26"

DESIGNATED OPERATOR:
Industrial Ecosystems, Inc.
#49 CR 3150
Aztec, NM 87410

Prepared by:

Souder, Miller and Associates
2101 San Juan Blvd.
Farmington, New Mexico
(505) 325-5667

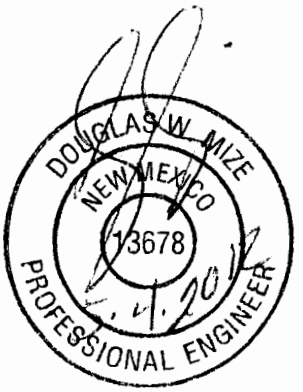


TABLE 1-1 CROSS REFERENCE WITH SPCC PROVISIONS

Section Number	Item	SPCC Plan Location
112.3(a)	Plan and Amendment Dates	Appendix 4
112.3(d)	Professional Engineer Certification	Section 1.1
112.3(e)	Location of SPCC Plan	Section 1.2
112.5	Plan Review	Section 1.3 Appendix 4
112.7	Management Approval	Section 1.1
112.7	Cross-Reference with SPCC Rule	Page i
112.7(a)(2)	Deviations From the Rule	Section 1.5
112.7(a)(3)	Part 2: General Facility Information Attachments: Vicinity Map, Site Plan with Drainage & AST Facility Diagram	Section 2.1 Figures 1, 2 & 3
112.7(a)(4)	Discharge Notification	Appendix 6
112.7(a)(5)	Discharge Response	Appendix 6
112.7(b)	Potential Discharge Volumes and Direction of Flow	Section 2.2
112.7(c)	Containment and Diversionary Structures	Section 3.1
112.7(d)	Practicability of Secondary Containment	Section 1.6
112.7(e)	Inspections, Tests, and Records	Section 3.2 Appendix 3 & 7
112.7(f)	Personnel, Training and Discharge Prevention Procedures	Section 3.3
112.7(g)	Security	Section 3.4
112.7(h)	Tank Truck Loading/Unloading	Section 3.5
112.7(i)	Brittle Fracture Evaluation	Section 3.6
112.7(j)	Conformance with Applicable State and Local Requirements	Section 3.7
112.9(b)	Facility Drainage	Section 3.8
112.9(c)(1)	Tank Construction	Section 3.9
112.9(c)(2)	Secondary Containment	Section 3.9
112.9(c)(3)	Inspections Facility Inspection Checklists	Section 3.9 Appendix 3
112.9(c)(4)	Discharge Prevention System	Section 3.9

Section Number	Item	SPCC Plan Location
112.9(c)(5)	Flow-through Process Vessels	Section 3.9
112.9(c)(6)	Produced Water Containers	Section 3.9
112.9(d)	Transfer Operations, Oil Production Facility	Section 3.10
112.20(e)	Certification of Substantial Harm Determination	Appendix 5

* Only selected excerpts of relevant rule text are provided. For a complete list of SPCC requirements, refer to the full text of 40 CFR part 112 as amended.

TABLE OF CONTENTS

1. INTRODUCTION

The purpose of this Spill Prevention, Control, and Countermeasure (SPCC) Plan is to identify potential sources of release and to describe preventive measures for the Crowe Blanco Properties, LLC (CBP) Facility to limit releases and to prepare the designated operator Industrial Ecosystems (IEI) to respond in a safe, effective, and timely manner for mitigation of a release. This Plan has been prepared to meet the requirements of Title 40, *Code of Federal Regulations,* Part 112 (40 CFR part 112). According to this regulation, the CBP Facility is considered to be an "onshore oil production facility" which is defined as:
"*all structures (including but not limited to wells, platforms, or storage facilities), piping (including but not limited to flowlines or intra-facility gathering lines), or equipment (including but not limited to workover equipment, separation equipment, or auxiliary nontransportation- related equipment) used in the production, extraction, recovery, lifting, stabilization, separation or treating of oil (including condensate), or associated storage or measurement, and is located in an oil or gas field, at a facility.*"

Definitions specific to SPCC Plan regulations (40 CFR part 112.2):
"Oil means oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil."

"Petroleum oil means petroleum in any form, including but not limited to crude oil, fuel oil, mineral oil, sludge, oil refuse, and refined products."

In addition to fulfilling requirements of 40 CFR Part 112, this SPCC Plan is used as a reference for oil storage information and testing records, as a tool to communicate practices on preventing and responding to discharges with employees, as a guide to facility inspections, and as a resource during emergency response.

The designated operator Industrial Ecosystems management has determined (with Souder, Miller and Associates' concurrence) that this facility does not pose a risk of substantial harm under 40 CFR part 112, as recorded in the "Substantial Harm Determination" included in Appendix 5 of this Plan.

This Plan provides guidance on key actions that IEI must perform to comply with the SPCC rule:

- Management must certify that they have devoted the necessary resources to fully implement the SPCC.

- Complete monthly site inspections as outlined in the Inspections, Tests, and Records Section of this Plan (Section 3.2) using the inspection checklists included in Appendix 3.

- Perform preventive maintenance on equipment, secondary containment systems, and discharge prevention systems described in this Plan to keep them in proper operating condition.

- Conduct annual employee training as outlined in the Personnel, Training, and Spill Prevention Procedures section of this Plan (Section 3.3) and document in the log included in Appendix 2.

- If either of the following occurs, submit the SPCC Plan to the EPA Region 6 Regional Administrator (RA) and the New Mexico Oil Conservation Division (NMOCD), along with other information as detailed in Appendix 6 of this Plan:
  - The facility discharges more than 1,000 gallons of oil into or upon the navigable waters of the U.S. or adjoining shorelines in a single spill event; or
  - The facility discharges oil in quantity greater than 42 gallons in each of two spill events within any 12-month period.

- Review the Plan on an annual basis. Update the Plan to reflect any "administrative changes" that are applicable, such as personnel changes or revisions to contact information, such as phone numbers. Administrative changes must be documented in the Plan review log of Appendix 4 of this Plan, but do not have to be certified by a Professional Engineer.

- Review the SPCC Plan at least once every five (5) years and amend it to include more effective prevention and control technology, if such technology will significantly reduce the likelihood of a spill event and has been proven effective in the field at the time of the review. Plan amendments, other than administrative changes discussed above, must be recertified by a Professional Engineer on the certification pages in Section 1.1.2 of this Plan.

- Amend the SPCC Plan within six (6) months whenever there is a change in facility design, construction, operation, or maintenance that materially affects the facility's spill potential. The revised Plan must be recertified by a Professional Engineer.

1.1 Approvals and Certifications

1.1.1 Management Approval

IEI and Crowe Blanco Properties, LLC are committed to preventing discharges of oil to navigable waters and the environment, and to maintaining the highest standards for spill prevention control and countermeasures through the implementation and regular review and amendment of the Plan. This SPCC Plan has the full approval of IEI management. Also, IEI has committed the necessary resources to implement the measures described in this Plan.

The Facility Manager is the Designated Person Accountable for Oil Spill Prevention at the facility and has the authority to commit the necessary resources to implement this Plan.

Authorized Facility Representative (facility response coordinator):

Signature: _____
Mr. Terry Lattin

Title: General Manager

Date: 5-4-12

1.1.2 Professional Engineer Certification 112.3(d)

The undersigned Registered Professional Engineer is familiar with the requirements of Part 112 of Title 40 of the *Code of Federal Regulations* (40 CFR part 112) and has visited and examined the facility, or has supervised examination of the facility by appropriately qualified personnel. The undersigned Registered Professional Engineer attests that this Spill Prevention, Control, and Countermeasure Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR part 112; that procedures for required inspections and testing have been established; and that this Plan is adequate for the facility. [40 CFR 112.3(d)]

This certification in no way relieves the owner or operator of the facility of his/her duty to prepare and fully implement this SPCC Plan in accordance with the requirements of 40 CFR part 112. This Plan is valid only to the extent that the facility owner or operator maintains, tests, and inspects equipment, containment, and other devices as prescribed in this Plan.

Engineer: Douglas W. Mize

Signature _____

Registration Number 13678

State New Mexico Date 5.4.2012

Notice

Statements contained in this document are intended solely as guidance. Site requirements have been established for site inspections and testing. The plan is adequate for the facility referenced. This document is not intended and cannot be relied upon to create rights, substantive, or procedural, enforceable by any party in litigation with the United States.

1.1.3 Certification of Applicability of Substantial Harm Criteria/Facility Response Plan

Refer to Appendix 5 to review the signed copy of 40 CFR 112 Appendix C, Attachment C-11, and "Certification of Applicability of the Substantial Harm Criteria."

No Facility Response Plan is required since IEI is not expected to cause "Substantial Harm" to the environment by discharging oil into, or on the navigable waters of the United States or adjoining shorelines (40 CFR 112.20(a)). A Certificate of the Applicability of the Substantial Harm Criteria is included in Appendix 5.

1.2 Location of SPCC Plan (40 CFR 112.3(e))

In accordance with 40 CFR 112.3(e), a complete copy of this SPCC Plan is to be maintained in the office building at the CBP Facility. The front office is attended during normal facility business hours, i.e., 7:00 AM to 5:00 PM, 5 days per week (closed on Saturdays and Sundays).

1.3 SPCC Compliance Inspection Plan Review Page [112.5 (a) (b)]

In accordance with 40 CFR 112.5(a) and 40 CFR 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every five years, or whenever changes are made to the physical facility or its operation that substantially changes the potential for discharge. As a result of this review and evaluation, IEI will amend the SPCC Plan within six months of the review to include more effective prevention and control technology if: 1) such technology will significantly reduce the likelihood of a spill event from the facility, and 2) if such technology has been field proven at the time of the review.

It is recommended that any technical changes to the tanks, product transfer lines, secondary containment or operational procedures be reviewed by a Registered Professional Engineer before a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil into or upon the navigable waters of the United States or adjoining shorelines. Scheduled five-year reviews and Plan amendments are recorded in Appendix 4. This log must be completed even if no amendment is made to the Plan. Unless a technical or administrative change prompts an earlier review, the next

scheduled review of this plan must occur within five years of the engineer's signature date on page 3.

Changes to the SPCC of a non-technical nature, such as contact information or a change in site personnel, may be made by a person other than the Professional Engineer.

1.4 Facilities, Procedures, Methods, or Equipment Not Yet Fully Operational [112.7]

At the time of preparation of this SPCC Plan, the CBP Facility has not been approved for construction by the New Mexico Oil Conservation Division (NMOCD). Therefore, procedures, methods and operational equipment described in this plan have not been implemented. Upon approval by NMOCD, all procedures, methods and operational equipment will be implemented as described.

1.5 Deviations from the Rule Requirements [112.7(a) (2)]

There are no deviations from the SPCC rules in this plan.

1.6 Contingency Planning [112.7(d), 112.1(b)]

Contingency Planning is necessary whenever it is determined that a secondary containment system for any part of the facility is not practicable and that a possibility of a discharge as described in 112.1 (b) exists.

All oil-bearing containers at the CBP Facility shall be stored within secondary containment; therefore, there is no need for an oil spill contingency plan.

40 CFR Part 109 criteria for State, Local and Regional Oil Removal Contingency Plans are only necessary if the facility makes an impracticability determination for secondary containment in accordance with Section 112.7(d).

2. GENERAL FACILITY INFORMATION [112.7(A) (3)]

Facility Name	**Crowe Blanco Properties, LLC Facility**
Address	**NW ¼ Sec. 16 T29 N R9W, N.M.P.M.** **San Juan County, New Mexico 87412** **N36° 43′ 39", W107° 47′ 26"** **(505) 632-1782**
Type	**Disposal facility for oilfield waste**
NAICS-SIC Code	**562910-4959**
Operator	**Industrial Ecosystems, Inc.** **Terry Lattin, General Manager / Facility Response Coordinator** **49 County Road 3150** **Aztec, NM 87410** **Office (505) 632-1782** **Cell (505) 860-2885**
Contacts	**Steve Abeyta, Operations Manager:** **Office (505) 632-1782** **Cell phone (505) 860-3801** **Clyde Tafoya, Facility Manager:** **Office phone (505) 632-1782** **Cell phone (505) 860-7360**

2.1 Facility Description

2.1.2 Location and Activities

The CBP Facility is an oilfield exploration and production waste acceptance facility located near Blanco, New Mexico. This approximately 206-acre facility is comprised of an office located at the facility's entrance, a fluid processing area containing mobile shaker and slurry tanks, receiving tanks, a centrifuge and centrate tanks, and tanks containing fresh water, and tank bottoms/rinsate. A land farm area is also on site, as indicated in Figure 2.

Hydrocarbon impacted soils and drill cuttings with associated liquids are delivered to the site via trucks. Prior to unloading, each load is tested to determine if it meets the permitted acceptance criteria and whether it is considered soil or fails the paint filter test. Once the acceptance criteria are satisfied, loads failing the paint filter test may be unloaded into the holding tanks. Drill cuttings that pass a paint filter test are

unloaded directly into the land farm bio-piles. The transporting trucks are not parked on site after hours and are not covered by this SPCC Plan.

All operations which have a potential for spills or untimely releases of liquids are conducted within secondary containment. A 1,000-gallon diesel fuel storage tank for fueling of on-facility equipment is located adjacent to the IEI offices, and is stored in a 1,167 gallon metal containment, with a 12,000 gallon earthen vehicle fueling secondary containment (see Figure 4, Diesel Containment Area). The Processing Area, which measures 200 feet by 300 feet with a 2.5-foot high berm, is shown in Figure 3. The area is lined with a 60-mil HDPE liner (or equivalent) and covered with a 12-inch layer of sand protecting the liner, followed by approximately 4 to 5.5 feet of topsoil to allow vehicular traffic in the Processing Area (see IEI's facility permit with engineering drawings for specifications). The secondary containment is designed with sufficient buffer capacity to contain the aggregate contents of all oil-holding vessels, plus a significant rainfall event. A further description of equipment within the Processing Area follows:

- Mobile Shaker Tanks: remove the coarse drill cuttings unloaded directly from trucks; constructed of metal, with dimensions of 45 feet by 8.5 feet, with a 10-foot deep V-bottom floor. Each tank has an approximate capacity of 28,611 gallons.

- Mobile Slurry Tanks: hold slurry from shaker; constructed of metal, with dimensions of 45 feet by 8.5 feet, with a 10-foot deep V-bottom floor. Each tank has an approximate capacity of 28,611 gallons.

- Tank Battery: comprised of twenty-two 400-barrel (16,800 gallons each) and two 1,000-barrel (42,000 gallons each), vertical, steel, flat-bottom, storage tanks; four groups of tanks are located within the Processing Area.

  The first group of tanks consists of eighteen 400-barrel steel interconnected tanks which allow fluidized drill cuttings and tank bottoms to flow from tank to tank. The tanks are each 12 feet in diameter and 20 feet high. The aggregate capacity of these tanks is 302,400 gallons, which is sufficiently contained within the Processing Area containment structure.

  The second tank group consists of two 400-barrel steel storage tanks containing tank bottoms and rinsate. This tank group has an additional secondary containment with a one-foot drive-over berm.

  The third tank group consists of two 400-barrel tanks containing fresh water. These tanks also have separate secondary containment with a drive-over berm and are located within the Processing Area containment. These tanks do not contain petroleum products and are therefore not included in the facility storage calculation in Section 2.1.3 below.

The fourth tank group consists of two 1,000-barrel tanks containing centrate effluent from the centrifuge. These tanks are located next to the warehouse housing the centrifuges, within the Processing Area containment.

- Centrifuges: two centrifuges are located inside the warehouse within the Processing Area. The centrifuges remove particles which passed through the 60-mesh screening in the Shaker Pits.

- Warehouse: a 60-foot by 72-foot building located within the Processing Area. In addition to the centrifuge, antifreeze and new and used oils are stored inside the building. These products are stored in 55-gallon drums or in 330-gallon plastic totes. The warehouse is constructed with 6-inch concrete curb barriers [reference Facility Permit Engineering Drawings Sheet C-104, Section A-A], which provides secondary containment for stored materials.

- Acid storage: hydrofluoric acid is stored in 330-gallon totes in a separate, covered storage area attached to the outside of the warehouse. The area is 10-feet by 18-feet with 18-inch berms, covered, and lined with a coating compatible with the stored chemical [reference Facility Permit Engineering Drawings Sheet C-104].

Hours of operation at the CBP Facility are from 7:00 AM to 5:00 PM, 5 days per week. On-call personnel are available at all times for loads arriving after hours. The facility is always staffed while receiving loads.

2.1.3 Facility Storage

Tank ID	Size (gal)	Product	Location	Construction	Year Manufactured
Oil-Containing Aboveground Storage Tanks					
1	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
2	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
3	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
4	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
5	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
6	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
7	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
8	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
9	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
10	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
11	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
12	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
13	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
14	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
15	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
16	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
17	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
18	16,800	Drill Cuttings	Containment Area	Steel	2006 or Newer
19	16,800	Tank Btms/Rinsate	Containment Area	Steel	2006 or Newer

20	16,800	Tank Btms/Rinsate	Containment Area	Steel	2006 or Newer
23	42,000	Centrate	Containment Area	Steel	2006 or Newer
24	42,000	Centrate	Containment Area	Steel	2006 or Newer
Mobile Shaker Tanks	28,602	Flow-through receiving material	Containment Area	Steel	2006 or Newer
Mobile Slurry Tanks	28,602	Flow-through receiving material	Containment Area	Steel	2006 or Newer
25	1,000	Diesel Fuel	Containment Area at office building	Steel	2006 or Newer
Warehouse Storage					
55-gallon Drums	220	New Oil	Warehouse	Metal	N/A
55-gallon Drums	220	Used Oil	Warehouse	Metal	N/A
5-gallon Containers	20	Oils & Lubricants	Warehouse	Plastic	N/A
Total Storage:	478,664	Gallons			

Note: This facility is regulated under 40 CFR 112.1 because the total oil storage is greater than 1,320 gallons. This facility is non-transportation related, with only oil storage, and is situated such that it could discharge oil upon navigable waters of the United States (as defined in 40 CFR 110.1)

2.2 Evaluation of Discharge Potential

2.2.1 Drainage Pathway

The CBP Facility is located approximately one mile south of the San Juan River. Largo Wash, which drains into the San Juan River, is located approximately one mile to the southwest of the CBP Facility. Three waterways (as defined by NMOCD and identified in IEI's facility permit) bisect the CBP property boundary. As required by NMOCD, operations will not be conducted within 200 feet of these waterways. Adequate berms and dikes will be constructed around the entire facility perimeter and at least 200 feet from the drainages passing through the property to preclude storm water runoff from entering these drainages.

2.2.2 Site Spill History 112.7(a)

To date there have been no spills associated with this facility. In the event of a discharge, the operating procedures will be reviewed and changes made as needed to prevent recurrence.

Spill incidents will be recorded on a form similar to that shown below. Completed forms will be maintained in Appendix 7 of this SPCC Plan for a period of five years.

Location/ Date/Time of Spill	Type & Amount Spilled	Cause	Affected Water-courses	Damages and Cost of Damages	Cleanup Cost	Corrective Action

Note: 40 CFR 112.4(a) requires reporting to the Regional Administrator of any spills 1,000 gallons of oil in a single discharge or more than 42 gallons in each of two discharges in any 12-month period. (See 40 CFR part 110). 40 CFR 112.4(d) (e) pertain to changes required to the plan by the Regional Administrator. There have been no changes recommended or required by the Regional Administrator. Reports must include type and amount of oil spilled, location, date and time of spill(s), watercourse affected (if any), physical damages, cost of damages, cost of cleanup, cause of spill or discharge, and corrective action taken.

2.2.3 Potential Spill Predictions, Volumes, Rates, and Control [112.7(b)]

Source	Tank Contents	Type of Failure	Maximum Volume Released (gallons)	Maximum Discharge Rate (gallons/hr)	Direction of Flow	Containment (gallons)
Aboveground Storage Tanks						
Manifolded Tanks # 1-18	Drill Cuttings	Rupture; Leakage	302,400	302,400	Contained	965,861
Tank # 19	Tk Bottoms & Rinsate	Rupture; Leakage	16,800	16,800	Contained	965,861
Tank # 20	Tk Bottoms & Rinsate	Rupture; Leakage	16,800	16,800	Contained	965,861
Tank # 21	Centrate	Rupture; Leakage	42,000	42,000	Contained	965,861
Tank # 22	Centrate	Rupture; Leakage	42,000	42,000	Contained	965,861
Tank # 23	Diesel Fuel	Rupture; Leakage	1,000	1,000	Contained	1,167

Truck Loading/Unloading Operations						
Tank Truck Loading/ Unloading	Recovered Hydrocarbons	Rupture, Piping or Valve Failure	33,600	33,600	Contained	965,861
Tank Truck Loading/ Unloading	Diesel Fuel	Rupture, Piping or Valve Failure	2,500	2,500	Contained	4,000
Slurry Holding Pit	Drill Cuttings	Rupture; Overfill; Valve Failure	28,948	28,948	Contained	965,861
Shaker Holding Pit	Drill Cuttings	Rupture; Overfill; Valve Failure	28,948	28,948	Contained	965,861
Tanker Truck Spill While Unloading	Drill Cittings Tank Bottoms	Rupture; Overfill; Valve Failure	5,000	5,000	Contained	965,861
Other Equipment/Storage						
Warehouse	Used Oil	Drum Rupture	55	55	Contained	965,861
Warehouse	Motor & Hydraulic Oils	Drum Rupture	55	55	Contained	965,861

3. PREVENTION MEASURES: GENERAL SPCC PROVISIONS

The following measures are implemented to prevent oil discharges during the handling, use, or transfer of oil products at the facility. Oil-handling employees shall receive training in the proper implementation of these measures.

3.1 Containment and Diversionary Structures [112.7(c)]

Methods of secondary containment at the CBP Facility include a combination of structures, buffer zones, land-based spill response and supervision of operations to prevent oil from reaching navigable waters. All operations associated with hydrocarbon liquids or the potential for hydrocarbon liquids are conducted within areas of secondary containment.

- **Secondary Containment** The Processing Area containment structure is 200 feet by 300 feet with a compacted 2.5-foot high earthen drive-over berm and lined with a 60-mil HDPE or equivalent liner. All operations having a potential for spills, except fueling of on-facility equipment, are conducted within this bermed and lined area, as seen in Figure 3. The Processing Area containment structure drainage system consists of surface and subsurface

drainage structures. Surface drainage is comprised of mild slopes and swales that drain to area drains tied into the subsurface liquid collection system. The subsurface collection system is constructed with a 0.5% north-south slope at the elevation of the liner to the liquid collection point. Refer to Sheet C-105. All liquids collected are removed by vacuum-truck or other removal method and placed into the facility's liquid hydrocarbon processes. In addition, separate containment areas are located within the Processing Area to provide isolation of spilled material in the event of a release from certain containers. Piping penetrates the liner and the berms to allow septic waste from warehouse restrooms to discharge into the septic system. The penetration point will be sealed to the pipe to maintain continuous integrity of the liner. The containment basin will hold 965,861 gallons, including displacement by tanks and structures above the final finish surface within the bermed area, which is greater than the 302,400 gallons required, as determined from the calculation shown in Appendix 1. The diesel tank is stored in a separate secondary containment located near IEI's offices. The 1,000-gallon tank for fueling of on-facility equipment is stored in a 1,167 gallon metal containment, with a 12,000-gallon earthen vehicle fueling secondary containment [reference Figure 4, and Facility Permit Engineering Drawings Sheet C-107 for detail].

- **No-Discharge Facility** According to Permit Documents prepared by Cheney, Walters & Echols, the CBP Facility's perimeter, excluding natural drainages, is enclosed by earthen berms and silt fencing to prevent run-on from entering the site and stormwater or other discharges from leaving the site [reference Cheney, Walters & Echols 5 of 17 titled Retention Dikes and Details].

- **Catchment Basins** Several stormwater catchment basins are located throughout the facility; site drainage is directed towards these basins in order to retain any stormwater or other discharges from leaving the site [reference Cheney, Walters & Echols Sheet 4 of 17 titled Drainage Basins and 5 of 17 titled Retention Dike and Details].

- **Sorbent Materials** A spill kit is kept in the warehouse for spills that occur at the facility.

3.2 Inspections, Tests, and Records [112.7(e)]

3.2.1 Monthly Inspection

Formal facility SPCC inspections are conducted monthly and records of these inspections are documented and signed by the inspector or facility manager. During the monthly inspections, all tanks, containment structures, valves, pipelines, and other equipment are inspected. The checklist for these inspections can be found in Appendix 3.

Any problems or concerns regarding tanks, piping, containments, or response equipment must immediately be reported to the general manager. Leaks detected from tanks, piping, or other components must be repaired as soon as possible to prevent a larger spill or a discharge to navigable waters or adjoining banks. Pooled oil is removed immediately upon discovery.

Inspection, training, and other records pertaining to the SPCC Plan are retained for at least five years in Appendix 7 of this plan.

3.3 Personnel, Training, and Discharge Prevention Procedures [112.7(f)]

3.3.1 Personnel Instruction

Spill prevention training, including a complete review of the CBP Facility SPCC Plan, is conducted for all new employees. Spill prevention and cleanup procedures are discussed at staff meetings. Temporary employees are required to be familiar with the CBC Facility SPCC, including spill control and cleanup procedures. Employee training is recorded on the SPCC training form contained in Appendix 2. Employee training records are retained for at least five years in Appendix 2 of this plan.

3.3.2 Designated person(s) accountable for spill prevention:

Mr. Terry Lattin (General Manager / Facility Response Coordinator) is the designated person responsible for spill prevention and emergency response at the CBP Facility. His 24-hour cell phone number is (505) 860-2885.

Also designated for emergency response are:
Mr. Steve Abeyta (Operations Manager), 24-hour cell phone number (505) 860-3801
Mr. Clyde Tafoya (Facility Manager), 24-hour phone number (505) 860-7360

See Section 3.12 and Appendix 6 of this SPCC Plan for further emergency and spill response information.

3.3.3 Spill prevention briefings:

Safety training meetings, including spill prevention and response, are held at least once a year for all IEI employees. Sign-in sheets, which include the topics of discussion at each meeting, are kept for documentation in Appendix 2.

The SPCC Plan Review attendance records are retained for at least five years in Appendix 7 of this plan.

3.4 Site Security [112.7(g)]

3.4.1 Fencing:

The CBP Facility is fully fenced with four-foot field fencing and a strand of barbed wire on top of the field fencing [Reference Cheney, Walters & Echols Sheet 5 of 17

titled Retention Dikes and Details]. The Processing Area is secured with 6-foot high chain link fencing. Access gates are locked when the facility is not in use [reference Facility Permit Engineering Drawings Sheet C-105 for detail].

3.4.2 Flow valves:
All tank valves are secured and closed and the Processing Area access is locked when the facility is unattended.

3.4.3 Starter controls locked:
The power supply to the pumps is located within the Processing Area, which is locked when the facility is closed.

3.4.4 Pipeline loading/unloading connections securely capped:
Pipeline connections are securely capped when they are not in use and blank-flanged when they are in standby service for an extended period of time. All permanently out-of-service pipelines are evacuated of their contents and plugged, capped or blind flanged.

3.4.5 Lighting is adequate to detect spills:
Lights illuminate the Processing Area and additional lights are located near the IEI offices. Lighting is adequate to detect spills during nighttime hours and to deter vandalism.

3.5 Facility Truck Loading/Unloading Operations [112.7(h)]

3.5.1 Secondary containment for vehicles:
The Processing Area is equipped with a drive-over berm, allowing all loading/unloading processes to occur within the containment. The total volume of this containment is 965,861 gallons, which is greater than the 302,400 gallons required. If a spill or measureable rainfall accumulation occurs within the containment area, the liquid is removed from the secondary containment area using a vacuum truck. The liquid is then processed with other recovered hydrocarbons received at the facility.

Secondary containment for vehicles during fueling at the diesel tank consists of a 12,000 gallon earthen berm containment.

3.5.2 Complete disconnection warning:
Warning signs shall be posted at the loading/unloading area to prevent trucks from departing before disconnecting lines. Lines on the diesel tank are equipped with quick-connect valves. A trained IEI employee is to be present to observe all operations at the loading/unloading area.

3.5.3 Vehicles examined for lowermost drainage outlets before leaving:

Warning signs shall be posted at the loading/unloading area to remind drivers to examine drain outlets prior to departure and make sure they are close. A trained IEI employee is present to observe all loading/unloading and fueling operations.

3.6 Brittle Fracture Evaluation Requirements [112.7(i)]

Brittle fracture evaluation is required for field constructed above ground containers undergoing repair, alteration, reconstruction, or change in service that might affect the risk of a discharge, failure, or other catastrophe due to brittle fracture. A brittle fracture evaluation is required when a discharge or failure or catastrophe has already occurred. The tanks used at the CBP Facility are shop manufactured and will be evaluated as necessary.

3.7 State Rules [112.7(j)]

The CBP Facility is permitted through the New Mexico Oil Conservation Division (NMOCD). Surface waste management facilities are regulated by NMOCD under Title 19, Chapter 15, Part 36 New Mexico Administrative Code (NMAC). Parts 29 and 30 cover release notification and remediation code requirements for NMOCD-permitted facilities. These requirements are incorporated into this SPCC Plan. Specifically, release notification and remediation (19.15.29 and 19.15.30 NMAC) plans and procedures are described in Appendix 6.

Additionally, since the facility will contain a septic waste system, which will be attached to the warehouse, a Liquid Waste Permit will be obtained from New Mexico Environment Department (NMED), pursuant to 20.7.3 NMAC [reference the Facility Permit Engineering Drawings Sheet C-109 for details].

3.8 Drainage Control [112.9(b)]

3.8.1 Drainage from diked storage areas inspected to prevent discharge:
The Processing Area for the facility does not have a drain or direct outfall to any watercourse [reference details in Section 3.1 *Containment and Diversionary Structures [112.7(c)]* of this document].

3.8.2 Inspection of field drainage systems:
Facility drainage systems, including ditches and retention ponds, will be regularly inspected for accumulation of oil or sheens due to oil that may have resulted from a discharge. Any accumulation will be promptly reported to the IEI Facility Manager. Any fluids potentially containing hydrocarbons will be removed and placed into the facility's liquid hydrocarbon processes.

3.9 Bulk Storage Tanks/Secondary Containment [112.9(c)]

3.9.1 Construction Materials used for containers [112.9(c)(1)]
All 1,000 and 400-barrel storage tanks and the 1,000-gallon diesel tank at the CBP Facility conform to UL-142 construction for single-wall steel ASTs for combustible and flammable liquid storage.

Used oil, new oil and antifreeze are stored in 55-gallon drums or 330-gallon totes in the warehouse within the Processing Area. All containers are compatible with the stored products.

3.9.2 Secondary Containment: bulk storage containers [112.9(c)(2)]
Most of the bulk storage containers, including flow-through process vessels, are located within the Processing Area, which is adequate containment for the entire capacity of the flow-through process vessels and sufficient freeboard to contain precipitation. The 1,000-gallon diesel tank is separately located at the facility, but is also adequately contained within secondary containment. The Processing Area is lined with a 60-mil HDPE liner (or equivalent) and covered with a 12-inch layer of sand protecting the liner, followed by approximately 4 to 5.5 feet of topsoil to allow vehicular traffic in the Processing Area (see CBP's facility permit with engineering drawings for specifications).

3.9.3 Inspections of containers [112.9(c)(3)]
All tanks within the Processing Area are observed daily by facility personnel. Formal inspections are conducted monthly to examine the exterior of the tanks, their foundations and supports, and containment areas. The scope of inspections and procedures is covered in the training provided to employees involved in handling oil at the facility. These inspections are documented using the Monthly Facility Visual Inspection Report form, which can be found in Appendix 3.

3.9.4 Discharge Prevention: Good engineering practice [112.8(c)(4)]
The tank system consists of eighteen interconnected tanks, which combine to hold a maximum of 302,400 gallons. To assure that tanks are not overfilled, all tanks are equipped with sight tubes to gauge tank fluid levels which shall be visually monitored during any transfer activities. Filling procedures allow tanks to be filled to a safe level, which is designated to be 90% of the tank capacity. When unloading trucks directly into the storage tanks, two persons shall attend the activity; one person shall monitor the truck liquid level and the other shall monitors the tank liquid level.

3.9.5 Flow-through process vessels [112.9(c)(5)]
All flow-through process vessels are located within the Processing Area, which has adequate secondary containment; therefore, alternate requirements do not apply.

3.9.6 Tank bottoms and rinsate containers [112.9(c) (6)]
All tank bottoms and rinsate containers are located within the Processing Area, which has adequate secondary containment; therefore, alternate requirements do not apply.

3.10 Facility Transfer Operations [112.9(d)]

3.10.1 Inspection of aboveground valves and piping [112.9(d) (1)]
Valves, pipelines, and pipe supports are visually inspected daily by IEI personnel. A more thorough inspection of the aboveground pipeline system is conducted during the monthly inspection discussed in Section 3.9. These inspections include flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces. Inspections are documented on forms contained in Appendix 3.

Inspection and pressure testing records are retained for at least five years in Appendix 7 of this plan.

3.10.2 Inspections at saltwater (oil field brine) disposal facilities [112.9(d) (2)]
Due to flowlines carrying oil field associated water at the CBP Facility, inspectors will pay particular attention to potential breaks in lines during or after sudden atmospheric temperature changes. Monthly facility inspections include a thorough inspection of the aboveground pipeline system, as described in 3.10.1.

3.10.3 Pipelines not provided with secondary containment [112.9(d) (3)]
Most flowlines are contained within the Processing Area and equipped with appropriate control valves. Facility transfer activities shall be attended.

3.11 Spill Control Equipment

Spill control equipment on site includes absorbent pads and booms, granular absorbent, empty drums, brooms, and shovels. Spill equipment is stored in the warehouse.

3.12 Emergency Contacts for Spill Response [112.7(a) (3) (vi)]

The following emergency phone numbers shall be posted by the phone in the office and warehouse.

Terry Lattin, General Manager / Facility Response Coordinator:
Office (505) 632-1782
24-Hour Cell phone (505) 860-2885

Steve Abeyta, Operations Manager:
Office (505) 632-1782
24-Hour Cell phone (505) 860-3801

Clyde Tafoya, Facility Manager:
Office phone (505) 632-1782
24-Hour Cell phone (505) 860-7360

Souder, Miller & Associates (Spill Response Contractor)
24-hour hot line (505) 325-5667

San Juan County Medical/Police/Fire/Hazardous Materials	911
San Juan County Non-emergency Dispatch	(505) 334-6622

Dialing 911 will reach the San Juan County Police Dispatch, who will contact the fire department, or HazMat Unit with the New Mexico State Police, if necessary.

The Facility Response Coordinator should be consulted before contacting the following parties:

New Mexico OCD, District 3 Aztec Office	(505) 334-6178
National Spill Response Center:	(800) 424-8802
EPA Region 6 Spill Line	(866) 372-7745

4. IMPLEMENTATION SCHEDULE (112.7):

All provisions of the SPCC Plan shall be implemented upon permit approval and construction of the CBP Facility.

5. CLOSURE AND LIMITATIONS

This SPCC Plan has been prepared for the exclusive use of Industrial Ecosystems, Inc. located in Farmington, New Mexico. This plan addresses only hydrocarbon storage in ASTs at the facility and potential run-off. Souder Miller & Associates' responsibilities in the contract with IEI are limited to the review, development and specifications of an acceptable SPCC Plan. The actual implementation of this Plan, including construction, inspection, and training and compliance verification is the responsibility of IEI. By signing this SPCC Plan and accompanying attachments, IEI management acknowledges this responsibility.

This SPCC Plan shall be reviewed every five years in order to include more effective spill prevention and control technology. Any changes or modifications to the AST system will require the review and approval of a Registered Professional Engineer before the changes are implemented.

The information in this SPCC is based on data provided to SOUDER MILLER & ASSOCIATES by IEI, and guidelines for SPCC Plan preparation outlined in 40 CFR Part 112. All work was performed in accordance with the referenced contract between SOUDER MILLER & ASSOCIATES and IEI and generally accepted professional practices in environmental engineering.

Prepared by

DOUGLAS W. MIZE
NEW MEXICO
13678
5.4.20
PROFESSIONAL ENGINEER

Douglas W. Mize, P.E.
Souder, Miller & Associates

FIGURES

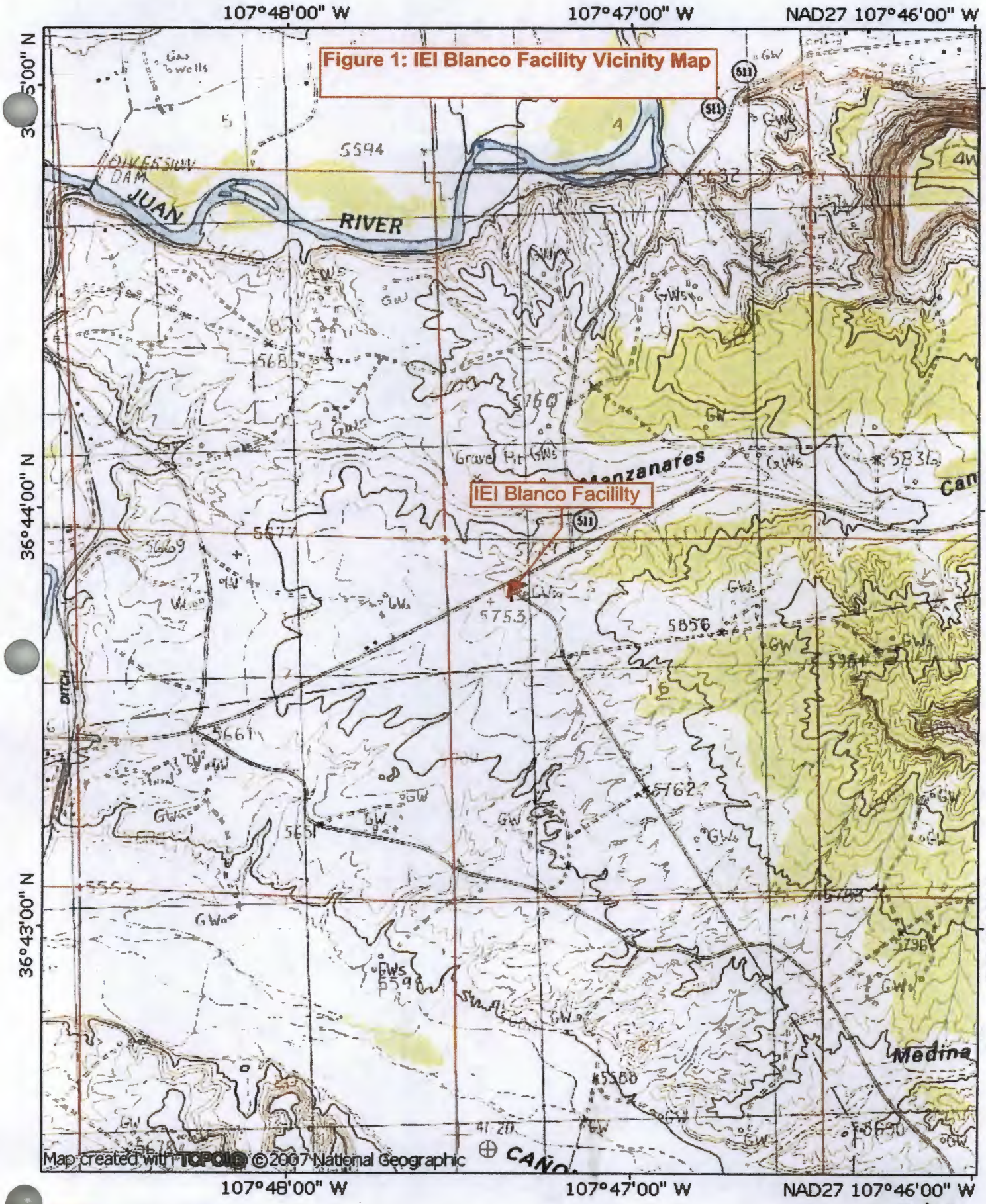
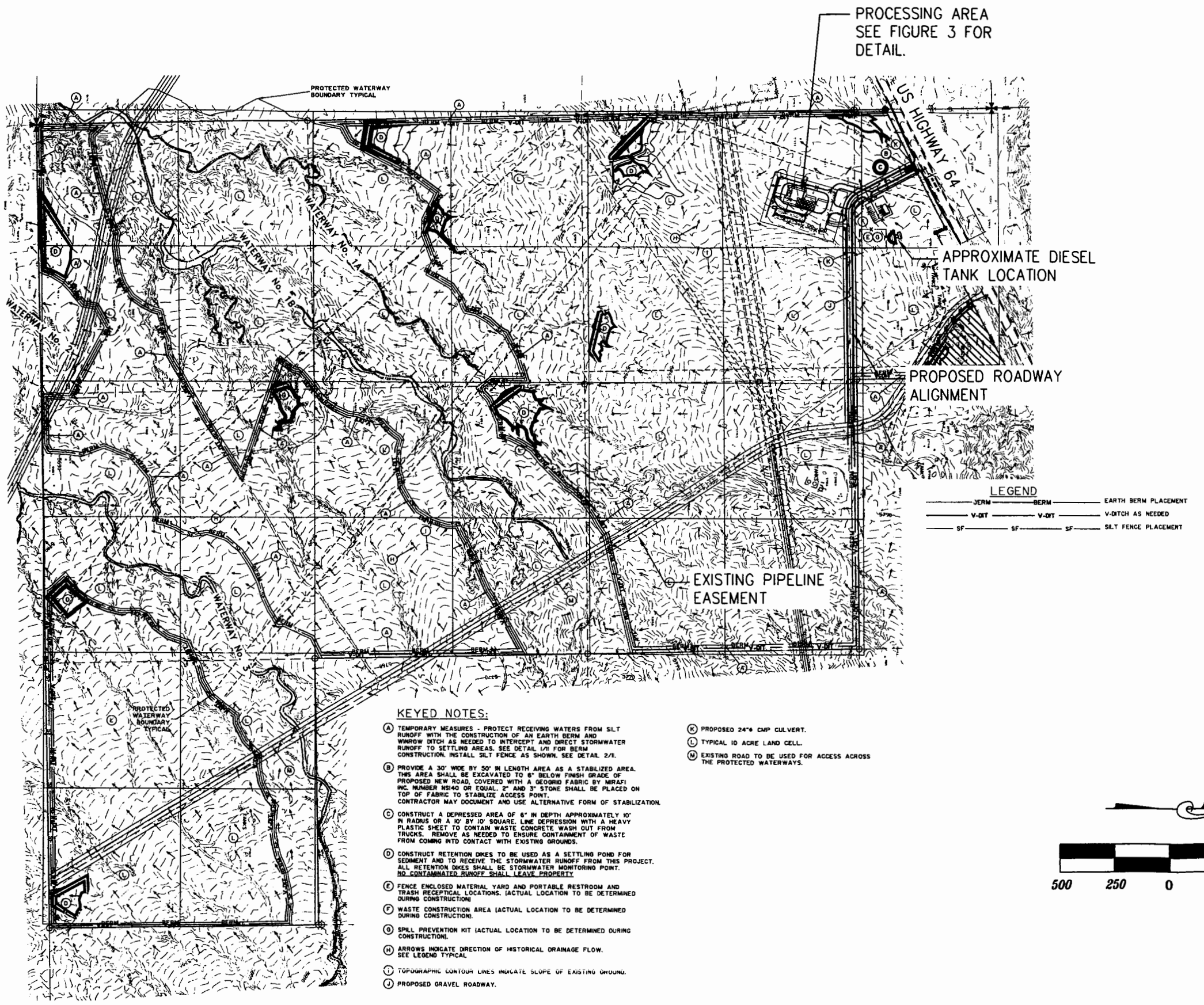


Figure 1: IEI Blanco Facility Vicinity Map
IEI Blanco Facility
107°48'00" W
107°47'00" W
NAD27 107°46'00" W
36°45'00" N
36°44'00" N
36°43'00" N
JUAN
RIVER
DAM
Medina
Map created with TOPO! © 2007 National Geographic
NATIONAL GEOGRAPHIC
0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km
TN MN
10°
05/10/10



KEYED NOTES:

(A) TEMPORARY MEASURES - PROTECT RECEIVING WATERS FROM SILT RUNOFF WITH THE CONSTRUCTION OF AN EARTH BERM AND WINROW DITCH AS NEEDED TO INTERCEPT AND DIRECT STORMWATER RUNOFF TO SETTLING AREAS. SEE DETAIL 1/1 FOR BERM CONSTRUCTION. INSTALL SILT FENCE AS SHOWN. SEE DETAIL 2/1.

(B) PROVIDE A 30' WIDE BY 50' IN LENGTH AREA AS A STABILIZED AREA. THIS AREA SHALL BE EXCAVATED TO 6" BELOW FINISH GRADE OF PROPOSED NEW ROAD, COVERED WITH A GEOGRID FABRIC BY MIRAFI INC. NUMBER MSI40 OR EQUAL. 2" AND 3" STONE SHALL BE PLACED ON TOP OF FABRIC TO STABILIZE ACCESS POINT. CONTRACTOR MAY DOCUMENT AND USE ALTERNATIVE FORM OF STABILIZATION.

(C) CONSTRUCT A DEPRESSED AREA OF 6" IN DEPTH APPROXIMATELY 10' IN RADIUS OR A 10' BY 10' SQUARE. LINE DEPRESSION WITH A HEAVY PLASTIC SHEET TO CONTAIN WASTE CONCRETE WASH OUT FROM TRUCKS. REMOVE AS NEEDED TO ENSURE CONTAINMENT OF WASTE FROM COMING INTO CONTACT WITH EXISTING GROUNDS.

(D) CONSTRUCT RETENTION DIKES TO BE USED AS A SETTLING POND FOR SEDIMENT AND TO RECEIVE THE STORMWATER RUNOFF FROM THIS PROJECT. ALL RETENTION DIKES SHALL BE STORMWATER MONITORING POINT. NO CONTAMINATED RUNOFF SHALL LEAVE PROPERTY

(E) FENCE ENCLOSED MATERIAL YARD AND PORTABLE RESTROOM AND TRASH RECEPTICAL LOCATIONS. (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION)

(F) WASTE CONSTRUCTION AREA (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION).

(G) SPILL PREVENTION KIT (ACTUAL LOCATION TO BE DETERMINED DURING CONSTRUCTION).

(H) ARROWS INDICATE DIRECTION OF HISTORICAL DRAINAGE FLOW. SEE LEGEND TYPICAL

(I) TOPOGRAPHIC CONTOUR LINES INDICATE SLOPE OF EXISTING GROUND.

(J) PROPOSED GRAVEL ROADWAY.

(K) PROPOSED 24"ø CMP CULVERT.

(L) TYPICAL 10 ACRE LAND CELL.

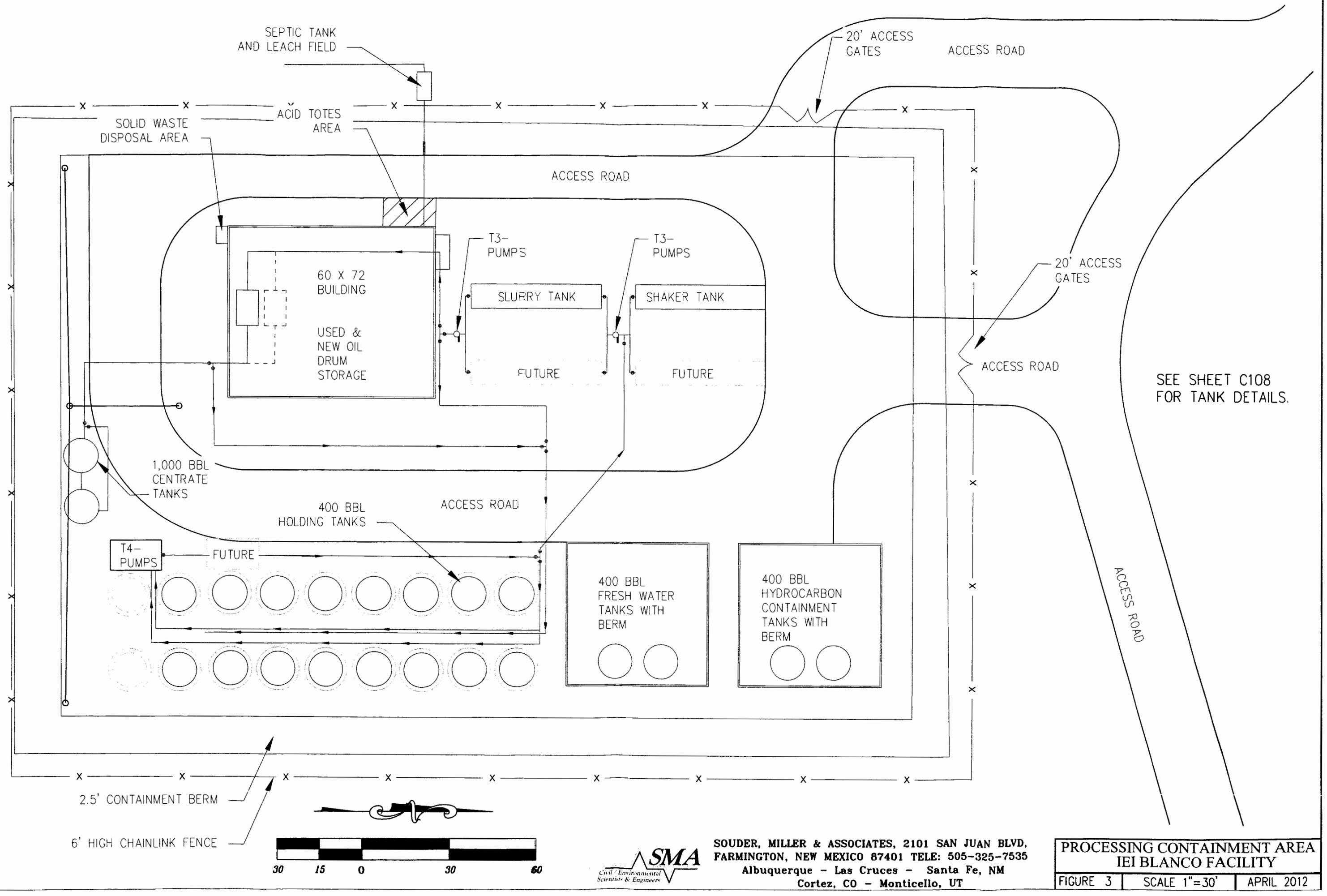
(M) EXISTING ROAD TO BE USED FOR ACCESS ACROSS THE PROTECTED WATERWAYS.

SMA Civil / Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD,
FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Cortez, CO - Monticello, UT

FACILITY MAP WITH DRAINAGE
IEI BLANCO FACILITY

FIGURE 2	SCALE 1"=500'	APRIL 2012



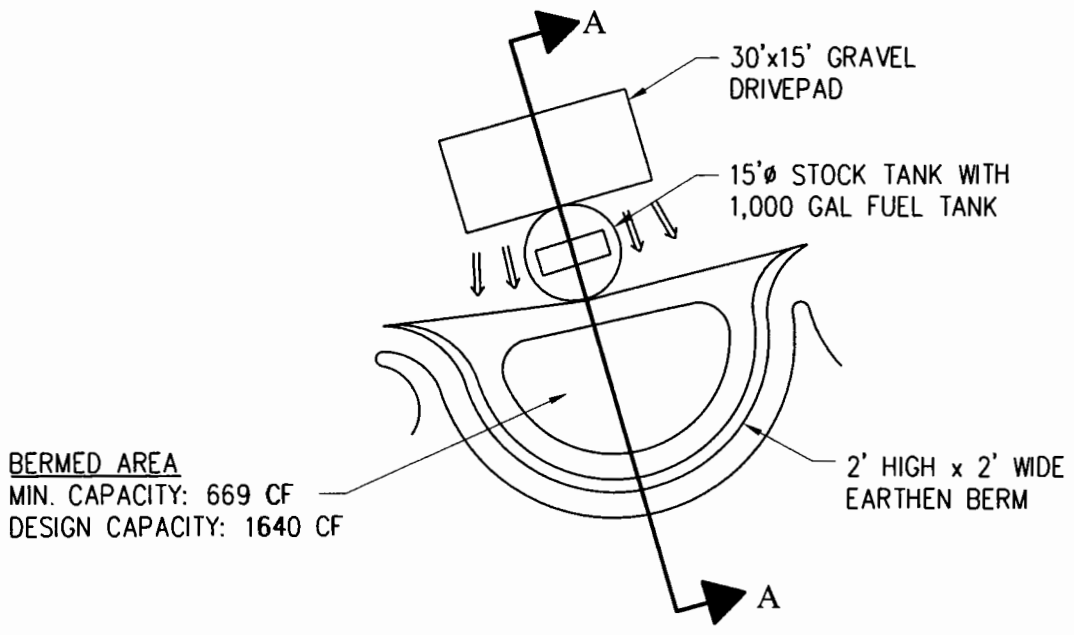
P:\5-IEI EVAP IDS (5119829)\CAD\C3D\PROCESS PLAN DESIGN\REVISIONS 201. ,119829EXISTING SITE PLAN.DWG 10/18/2010 10:37 AM

SMA
Civil / Environmental
Scientists & Engineers

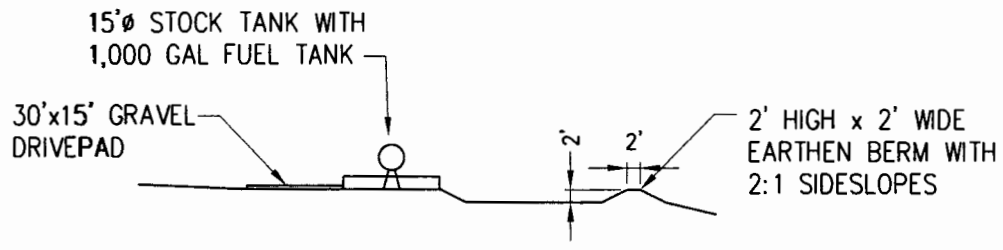
SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD,
FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Cortez, CO - Monticello, UT

PROCESSING CONTAINMENT AREA
IEI BLANCO FACILITY

FIGURE 3	SCALE 1"=30'	APRIL 2012



PLAN VIEW



SECTION A-A

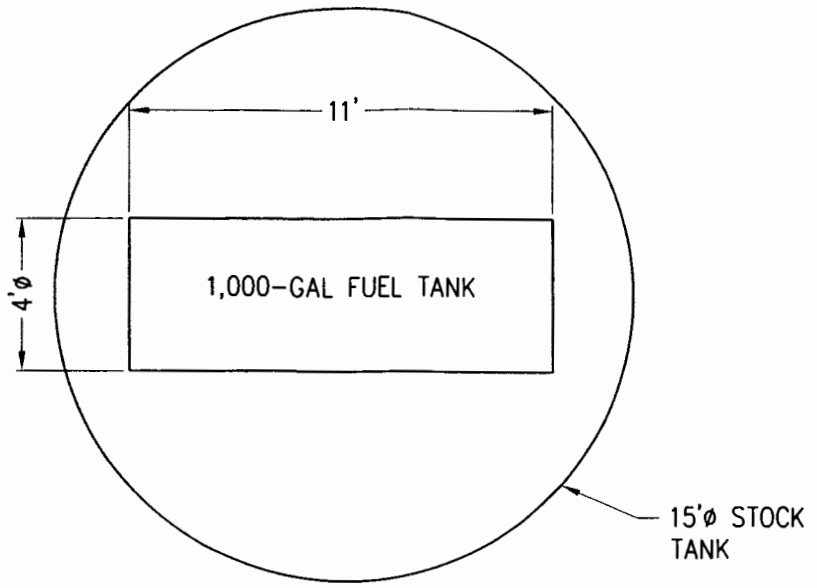
FUELING TANK & CONTAINMENT DRAINAGE

SCALE: 1" = 30'

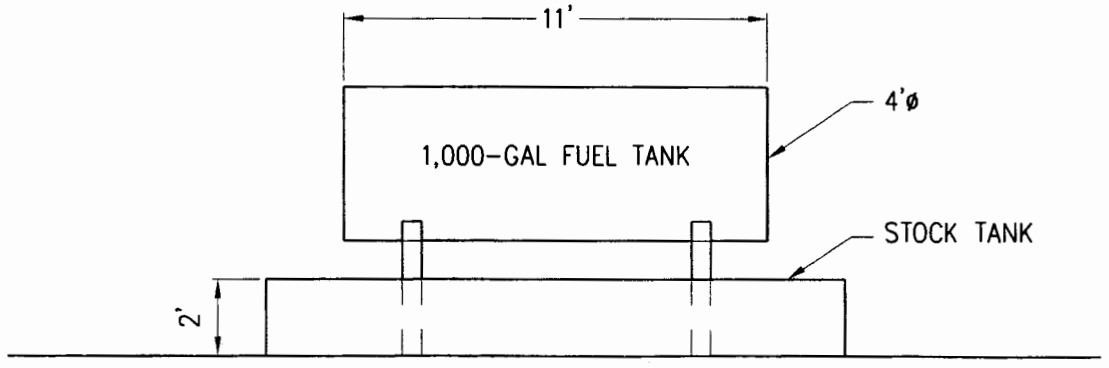
30 15 0 30 60

LEGEND

⟹ DRAINAGE FLOW ARROW (GRADE TO DRAIN)



PLAN VIEW



FUELING TANK & CONTAINMENT

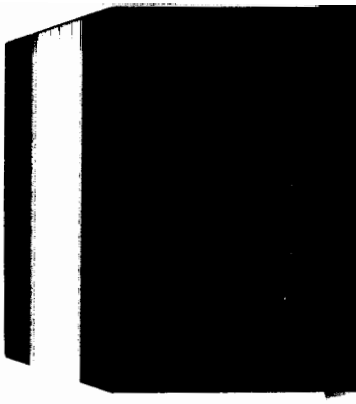
NOT TO SCALE

SEE SHEET C108 FOR
TANK DETAILS.

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD,
FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Cortez, CO - Monticello, UT

DIESEL CONTAINMENT AREA
IEI BLANCO FACILITY

FIGURE 4 | SCALE NTS | APRIL 2012



APPENDIX 1

SECONDARY CONTAINMENT CALCULATIONS

Processing Area

Calculation of Secondary Containment

Oil Storage Tank Capacity

# of Tanks	*Tank Contents*	*Capacity (Gallons, each)*	*Diameter (Feet)*	*Total Capacity (Gallons)*	
18	Drill Cuttings	16,800	12	302,400	interconnected
2	Tank Bottoms/ Rinsate	16,800	12	33,600	
4	Mobile Shaker/Slurry Tanks	3,825	8.5 (horizontal)	15,300	
2	Centrate	1,000	20	2,000	
			Total	353,300	

Berm Dimensions

Length of Containment Area	300	feet
Width of Containment Area	200	feet
Depth of Containment Area	2.50	feet
Total Volume	150,000	ft^3
Total Volume	1,122,000	Gallons (cubic feet X 7.48)

Displacement Volumes

Tank Battery

Tank Diameter	12	feet
Tank/ Berm Height	2.5	feet
Tank Volume	283	ft^3
# of tanks	18	
Total Displacement Volume	**38,069**	**Gallons**

Centrate Tanks

Tank Diameter	20	feet
Tank/ Berm Height	2.5	feet
Tank Volume	785	ft^3
# of tanks	2	
Total Displacement Volume	**11,750**	**Gallons**

Shaker and Slurry Tanks

Length	45	feet
Width	8.5	feet
Height	2.00	feet
Total Volume	765	ft^3
Total Volume	5,722	Gallons
# of pits	4	
Total Displacement Volume	**22,889**	**Gallons**

HF Acid Storage

Length	10	feet
Width	18	feet
Height	1.50	feet
Total Volume	270	ft^3
Total Volume	2,020	Gallons
# of containments	1	
Total Displacement Volume	**2,020**	**Gallons**

Warehouse

Length	72	feet
Width	60	feet
Height	2.50	feet
Total Volume	10,800	ft^3
Total Volume	80,784	Gallons
# of containments	1	
Total Displacement Volume	**80,784**	**Gallons**

Fresh Water and Hydrocarbon Containment Tanks

Length	12	feet
Width	16	feet
Height	1.00	feet
Total Volume	192	ft^3
Total Volume	1,436	Gallons
# of containments	2	
Total Displacement Vo	**2,872**	**Gallons**

(Total Dike Volume) - (Displacement Volume due to tanks within containment) = Available Dike Volume

1,122,000 - 158,383 = 963,617 Gallons

Maximum 1 Tank Failure Volume = (Max Tank Volume)

16,800 = 16,800 Gallons

Containment capacity is equivalent to **5736%** of the capacity of the largest container and includes sufficient freeboard

Diesel

Tank #	*Tank Contents*	*Capacity (Gallons)*	*Diameter (Feet)*
Diesel	Diesel	1,000	4

Berm Dimensions

Length of Containment Area	13	feet
Width of Containment Area	6	feet
Depth of Containment Area	2.00	feet
Total Volume (cubic feet)	156	ft^3
Total Volume (gallons)	1,167	Gallons

Displacement Volumes

Displacement nominal - tank set on stilts

see Sheet C107

(Total Dike Volume) - (Displacement Volume due to tanks within containment) = Available Dike Volume

1,167 - 0 = 1,167 Gallons

Maximum 1 Tank Failure Volume = (Max Tank Volume)

1,000 = 1,000 Gallons

Containment capacity is equivalent to **117%** of the capacity of the largest container and includes sufficient freeboard

APPENDIX 2

SPCC Plan Training/ Review Record Form

SPCC PLAN TRAINING/REVIEW RECORD FORM

INDUSTRIAL ECOSYSTEMS INC.

CBP FACILITY

Blanco, New Mexico 87412

This form is to be completed for training of new-hires in the SPCC Plan and quarterly review meetings.

X_____

Name and title of person providing training:

X_____

Signature of trainer:

Meeting date: _____

In attendance:

Name	Signature:	Title:

Comments

_____

_____

_____

_____

_____

_____

_____

APPENDIX 3

MONTHLY FACILITY INSPECTION CHECKLIST

MONTHLY FACILITY VISUAL INSPECTION FORM

Facility Name: I.E.I. Blanco Land Farm Date: _____

Location: Blanco, NM Inspected by: _____

Signature: _____

Facility Drainage	Y or N
No operations within 200' of drainages?	
Facility berms in good condition?	
Ditches, retention ponds, and other drainage collection areas free of oil sheen?	
Preventing runoff from entering drainages?	
Grading adequate to route runoff around operations, evaporation ponds & land farm areas?	
Comments:	

Secondary Containment	Y or N
Standing water deeper than 6" in containment area?	
If yes, pump into storage tanks	
Evidence of damage to liners or berms?	
Comments:	

Piping & Delivery System	Y or N
Evidence of leakage at valves, flanges, or other fittings?	
Evidence of corrosion?	
Pipe supports in good condition without corrosion?	
Warning signs & barriers in place?	
Last tightness test date (buried pipes):	
Comments:	

Truck Loading/ Unloading Area	Y or N
Evidence of leakage in hoses, fittings?	
Drip pans emptied	
Warnings signs & barriers in place?	
Comments:	

Warehouse/ Drum Storage	Y or N
Evidence of leakage/corrosion on drums?	
Drums kept within containment area?	
Acid storage within secondary containment and covered?	
Comments:	

Fuel Tank	Y or N
Evidence of leakage?	
Secondary containment in good condition?	
Drip pans emptied	
Hoses in good condition (no holes, cracking, etc.)?	
Warning signs & barriers in place?	
Comments:	

Security	Y or N
Fences & gate intact?	
Gate has lock?	
Lighting is functional?	
Spill kit inventories checked and placed near containment areas?	
Training and inspection records up-to-date?	
Comments:	

	Aboveground Storage Tanks							
	Description (Y or N)	Secondary berms intact?	Evidence of tank leakage?	Evidence of corrosion?	Sight tubes intact?	Access ladders and steps stable and	Valves closed, not leaking?	Comments:
u	Tank 1							
t	Tank 2							
t	Tank 3							
i	Tank 4							
n	Tank 5							
g	Tank 6							
s	Tank 7							
T	Tank 8							
a	Tank 9							
n	Tank 10							
k	Tank 11							
	Tank 12							
B	Tank 13							
a	Tank 14							
t	Tank 15							
t	Tank 16							
e	Tank 17							
r	Tank 18							
y	Tank 1							
	Tank 2							
	Diesel Tank							
	Centrate Tank 1							
	Centrate Tank 2							

Additional Comments:

APPENDIX 4

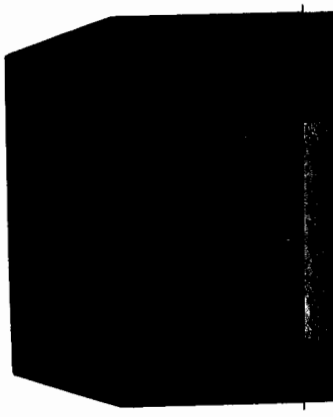
5-YEAR REVIEW/SPCC AMENDMENT TABLE

Record of Plan Review and Changes

Date	Authorized Individual	Review Type	PE Certification	Summary of Changes

APPENDIX 5

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA



CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

FACILITY NAME: **CROWE BLANCO PROPERTIES, LLC FACILITY**
FACILITY ADDRESS: NW1/4 Section 16, T29N, R9W; Hwy 64, Blanco, New Mexico 87412

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

☐ Yes ☒ No

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

☐ Yes ☒ No

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

☐ Yes ☒ No

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance such that a discharge from the facility would shut down a public drinking water intake?

- If a comparable formula is used documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.
- For the purposes of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

☐ Yes ☒ No

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

☐ Yes ☒ No

Reference: 40 CFR 112 Appendices C & D

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature

General Manager
Title

Terry Lattin
Printed Name

5-4-12
Date

APPENDIX 6

EMERGENCY SPILL PROCEDURES

EMERGENCY SPILL PROCEDURES
CROWE BLANCO PROPERTIES, LLC FACILITY
OPERATED BY: INDUSTRIAL ECOSYSTEMS INC
NW1/4 Section 16, T29N, R9W; Hwy 64,
Blanco, New Mexico 87412

The following procedures are covered in IEI's Emergency Action Plan and outline the minimum actions to be taken to respond to a release/spill of oil at the CBP Facility covered by this SPCC Plan. (40 CFR 112.7(a) (5) and 19.15.29, 19.15.30 and 19.15.36 NMAC)

For any release (greater than five (5) barrels OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC) that occurs on site, that does not enter drainage:

1. Identify source of release
2. Shut off source
3. Control release (i.e. use of following)
    a. Berms
    b. Catchment basins
    c. Absorbent materials
    d. Dams
4. Make necessary IEI internal notifications:
    a. Terry Lattin, General Manager
    b. Clyde Tafoya, Facility Manager
    c. Steve Abeyta, Operations Manager
5. Notify NMOCD (as required by 19.15.29 NMAC and defined therein):
    a. If release is a minor release, ***5 – 25 barrels***, written notification (Form C-141) is required within 15 days to the division district office (see page 4 of this Appendix)
    b. If release is a major release, ***greater than 25 barrels (OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC),***
        i. immediate verbal notification is required to division district office
        ii. immediate verbal notification is required to the division's environmental bureau chief
        iii. written notification (Form C-141) is required within 15 days to the division district office (see page 4 of this Appendix)
6. Begin remediation as required by 19.15.30 NMAC:
    a. The vadose zone (*unsaturated earth material below the land surface and above ground water, or in between bodies of ground water*) shall be abated so that water contaminants will not, with reasonable probability, contaminate ground water or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolation or other transport mechanisms, or as the water table elevation fluctuates.
    b. If groundwater is determined to be impacted, an abatement plan must be submitted to NMOCD with details of how the standards of 20.6.2.3103 will be met (unless technical infeasibility is proven or an exemption granted)
7. Submit abatement plan proposals and reports as required by NMOCD.

For any release (greater than five (5) barrels *OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards In Subsection A and B or C of 19.15.30.9 NMAC)* that occurs on site, that enters a drainage within CBP Facility boundary:

Follow steps 1-5 above.

6. Notify U.S. Environmental Protection Agency (EPA) / National Response Center (see page 5 of this Appendix)
7. Begin remediation as required by 19.15.30 NMAC:
    a. The vadose zone (*unsaturated earth material below the land surface and above ground water, or in between bodies of ground water*) shall be abated so that water contaminants will not, with reasonable probability, contaminate ground water or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolation or other transport mechanisms, or as the water table elevation fluctuates.
    b. If groundwater is determined to be impacted, an abatement plan must be submitted to NMOCD with details of how the standards of 20.6.2.3103 will be met (unless technical infeasibility is proven or an exemption granted)
8. Submit abatement plan proposals and reports as required by NMOCD.

For any release (greater than five (5) barrels *OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC*) that occurs on site, that enters a drainage outside of the CBP Facility boundary:

1. Identify source of release
2. Shut off source
3. Make necessary IEI internal notifications:
    a. Terry Lattin, General Manager:
    b. Steve Abeyta, Operations Manager:
    c. Clyde Tafoya, Facility Manager:
4. Control release (i.e. use of following)
    a. Berms
    b. Absorbent materials
    c. Catchment basins
    d. Dams
5. Notify State Police
    a. Provide description of release
    b. Potential closure of Largo Road
6. Notify NMOCD (as required by 19.15.29 NMAC) of any release that may with reasonable probability be detrimental to water or exceed the standards of Subsections A and B or C or 19.15.30.9 NMAC:
    a. immediate verbal notification is required to division district office
    b. immediate verbal notification is required to the division's environmental bureau chief
    c. written notification (Form C-141) is required within 15 days to the division district office and to the division's environmental bureau chief (see page 4 of this Appendix)
7. Notify EPA / National Response Center (for phone numbers, see page 5 of this Appendix)
8. Begin remediation as required by 19.15.30 NMAC:
    a. The vadose zone (*unsaturated earth material below the land surface and above ground water, or in between bodies of ground water*) shall be abated so that water contaminants will not, with reasonable probability, contaminate ground water or surface water in excess of the standards in Subsections B and C of 19.15.30.9 NMAC, through leaching, percolation or other transport mechanisms, or as the water table elevation fluctuates.
    b. If groundwater is determined to be impacted, an abatement plan must be submitted to NMOCD with details of how the standards of 20.6.2.3103 will be met (unless technical infeasibility is proven or an exemption granted)
9. Submit abatement plan proposals and reports as required by NMOCD and EPA.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☐ Final Report

Name of Company	Contact
Address	Telephone No.
Facility Name	Facility Type

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Source of Release	Date and Hour of Occurrence	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☐ No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☐ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Describe Area Affected and Cleanup Action Taken.*

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name:	Approved by District Supervisor:	
Title:	Approval Date:	Expiration Date:
E-mail Address:	Conditions of Approval:	Attached ☐
Date: Phone:		

Attach Additional Sheets If Necessary

RELEASE REPORTING
IMPORTANT PHONE NUMBERS and
COMPLIANCE DOCUMENTATION LOG

Agency	When to notify	Phone Number	Mailing Address	Time/Date Contacted	Incident No.	Person Contacted/ Title
CBP Facility	Any release	Main Office: (505) 632-1782 Terry Lattin: (505) 860-2885 Steve Abeyta: (505) 860-3801 Clyde Tafoya: (505) 860-7360	P.O. Box 2043 Farmington, NM 87499			
New Mexico Oil Conservation Division – District Office	**Any release** greater than five (5) barrels (210 gallons) (OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC)	Office: (505) 334-6178 Fax: (505) 334-6170	1000 Rio Brazos Road Aztec, New Mexico 87410			

New Mexico Oil Conservation Division – Environmental Bureau	Any release greater than five (5) barrels (210 gallons) (OR that results in a fire, will reach a watercourse, may endanger public health or results in substantial damage to property or the environment OR that may with reasonable probability be detrimental to water or exceed the standards in Subsection A and B or C of 19.15.30.9 NMAC) **AND enters a drainage or impacts groundwater**	Office: (505) 476-3440 Fax: (505) 476-3462	1220 South St. Francis Drive Santa Fe, NM 87505			
National Response Center	Any release greater than five (5) barrels (210 gallons) AND enters a drainage or impacts groundwater	(800) 424-8802	2100 Second Street SW Washington, DC 20593			
US EPA Region 6 Office	Any release greater than five (5) barrels (210 gallons) AND enters a drainage or impacts groundwater	(866) 372-7745	1445 Ross Avenue Suite 1200 Dallas, Texas 75202			
NM State Police / Incident Commander	Any release greater than five (5) barrels that enters drainage ***outside*** of CBP boundary	911				

Agency Notification Standard Report

Information contained in this report, and any supporting documentation, must be submitted to the EPA Region 6 Regional Administrator within 60 days of a qualifying discharge incident.

Facility:	**INDUSTRIAL ECOSYSTEMS INC. CROWE BLANCO PROPERTIES, LLC FACILITY NW1/4 Section 16, T29N, R9W; Hwy 64, Blanco, New Mexico 87412**
Owner/Operator:	Crowe Blanco Properties, LLC. Industrial Ecosystems, Inc Terry Lattin, General Manager # 49 County Rd. 3150 Aztec, NM 87410
Name of person filing report:	
Location:	**36° 43' 39"N, 107° 47' 26"W**
Maximum storage capacity:	421,460 gallons

- Violate applicable water quality standards;
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines; or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Description of facility (attach maps, flow diagrams, and topographical maps):
The CBP Facility is an oilfield exploration and production waste acceptance facility located near Blanco, New Mexico. This approximately 206-acre facility is comprised of an office located at the facility's entrance, a fluid processing area containing slurry holding pits, shaker holding pits, drill cuttings processing tanks, two centrifuges, and tanks containing fresh water, tank bottoms, rinsate and centrate. A land farm area is also on site as indicated in Figure 2.

All operations which have a potential for spills or untimely releases of liquids are conducted within secondary containment. A 1,000-gallon diesel fuel storage tank for fueling of on-facility equipment is located adjacent to the IEI offices, and is stored in a 1,167 gallon metal containment, with a 12,000 gallon earthen vehicle fueling secondary containment. The Processing Area, which measures 200 feet by 300 feet with a 2.5-foot high berm, is shown in Figure 3. The area is lined with a 60-mil HDPE liner (or equivalent) and covered with a 12-inch layer of sand protecting the liner, followed by approximately 4 to 5.5 feet of topsoil to allow vehicular traffic in the Processing Area (see IEI's facility permit with engineering drawings for specifications). The secondary containment is designed with sufficient buffer capacity to contain the aggregate contents of all oil-holding vessels, plus a significant rainfall event. A further description of equipment within the Processing Area is located in Section 2.1 of this SPCC Plan.

Agency Notification Standard Report (cont'd)
Cause of the discharge(s), including a failure analysis of the system and subsystems in which the failure occurred:
Corrective actions and countermeasures taken, including a description of equipment repairs and replacements:
Additional preventive measures taken or contemplated to minimize possibility of recurrence:
Other pertinent information:

APPENDIX 7

COMPLETED FORMS