NM1 - ___15____

CLOSURE PLAN REQUEST AND APPROVAL

July 20, 2020

Jones, Brad A., EMNRD

From: Jones, Brad A., EMNRD
Sent: Wednesday, September 2, 2020 3:10 PM
To: rhinoabq@hotmail.com
Cc: 'Snyder, Jay'
Subject: NM1-015 Goo Yea Landfarm, Inc. - North Landfarm Closure/Post- Closure Care Plan Approval
Attachments: 2020 0720 NM1-015 Closure and Post Closure Care Plan approval.pdf

Mr. Dyer,

The Oil Conservation Division (OCD) has completed the review of Goo Yea Landfarm, Inc.'s (Goo Yea) of a closure/post-closure care plan, dated June 30, 2019. Please see the attached approval letter. If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Brad Jones

Brad A. Jones
Environmental Engineer
EMNRD Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505
E-mail: brad.a.jones@state.nm.us

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval
Director, Oil Conservation Division

July 20, 2020

Mr. Steve Dyer
Goo Yea Landfarm, Inc.
4601 Hondo Pass Road, Suite K
El Paso, Texas 79904

RE: Closure/Post-Closure Care Plan for Goo Yea Landfarm, Inc. – North Landfarm Bronco Facility (Permit NM1-015) SE/4 of Section 14, Township 11 South, Range 38 East, NMPM, Lea County, New Mexico

Mr. Dyer:

The Oil Conservation Division (OCD) has completed the review of Goo Yea Landfarm, Inc.'s (Goo Yea) closure/post-closure care plan, dated June 30, 2019, written with due consideration of the proposed June 27, 2019 minor modification request to permit NM1-015. The OCD approves of the plan with the following conditions:

1. Goo Yea shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), the existing permit NM1-015, the transitional provisions of 19.15.36.20 NMAC, and all conditions specified in this approval.

2. Goo Yea shall comply with conditions specified in OCD's July 20, 2020 minor modification approval.

3. Goo Yea shall use the current version of the New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation – Volume 1 Soil Screening Guidance for Human Health Risk Assessments to perform a risk assessment (i.e., develop a conceptual site model and establish pathways for comparison to Soil Screening Levels) for:
    a. 20.6.2.3103 A and B NMAC metals in the treatment zone.
    b. All 20.6.2.3103 A and B NMAC constituents including applicable Toxic Pollutants as referenced in the event Release Response sampling of vadose zone is required (19.15.36.15.E.5 NMAC).
    c. "Soil tests" following site cleanup (19.15.36.18.C.4.f. NMAC).

4. Goo Yea shall submit the chloride background results and ProUCL statistical demonstration to OCD for review and approval prior to use in the vadose zone monitoring comparison or the assessment of the site cleanup samples.

5. Goo Yea shall submit the proposed exposure pathway limit for the remaining constituents required of 19.15.36.15.B NMAC to OCD for review and approval prior to use in the vadose zone monitoring comparison, the treatment zone closure comparison, or the assessment of the site cleanup samples.

6. Goo Yea shall collect the four-point composite treatment zone closure samples in Cell 1 from surface to 12 inches below ground surface. Based upon the administrative record, only one additional lift was requested by Goo Yea for Cell 1 on December 22, 2003 and approved by OCD on March 4, 2004.

7. Goo Yea shall collect the four-point composite treatment zone closure samples in Cells 2 through 7 from surface to 6 inches below ground surface. Condition 4 of the Landfarm Operations section of the December 10, 1999 permit, specifies that "Soils must be spread on the surface in lifts of six inches or less." Based upon the administrative record, OCD has only approved an additional lift for Cell 1.

8. Treatment zone samples must be taken no closer than 100 feet from each landfarm cell boundary, as illustrated on Figure 4. Several sample locations on Figure 4 of the plan are proposed in the berm area rather than the active landfarm cell area.

9. Vadose zone samples must be taken no closer than 100 feet from each landfarm cell boundary, as illustrated on Figures 5 and 6. Several sample locations on Figures 5 and 6 of the plan are proposed in the berm area rather than the active landfarm cell area.

10. Goo Yea shall contact OCD to resolve the proposed cost estimates within 15 days of this approval and update the financial assurance mechanism based upon OCD's approval of the revised cost estimates within 90 days of this approval.

Please be advised this approval does not relieve Goo Yea of liability should operations result in pollution of surface water, groundwater or the environment nor does it relieve Goo Yea of its responsibility to comply with other applicable rules and regulations. If there are any questions regarding this matter, please do not hesitate to contact Brad Jones on my staff at (505) 476-3487 or *brad.a.jones@state.nm.us.*

Respectfully,

Jim Griswold
Environmental Bureau Chief

JG/baj

cc: Jay T. Snyder, EA Engineering, Science, and Technology, Inc.

Jones, Brad A., EMNRD

From: Snyder, Jay <jsnyder@eaest.com>
Sent: Monday, July 1, 2019 9:23 AM
To: Griswold, Jim, EMNRD; Jones, Brad A., EMNRD
Cc: rhinoabq@hotmail.com
Subject: [EXT] NM-01-0015 Closure Plan Errata
Attachments: Jim Griswold 6_30_19 Closure Plan Goo Yea Landfarm Inc North Landfarm NM-01-0015 reduced.pdf

I have merged Table 5 with the PDF document as I stated in my email last night. Have a great day!

Jay T. Snyder, P.E., P.G., CHG
Senior Geological Engineer
EA Engineering, Science, and Technology, Inc. PBC
320 Gold Avenue SW, Suite 1300
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Phone: (505) 224-9013

June 30, 2019

Jim Griswold
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: CLOSURE PLAN, GOO YEA LANDFARM, INC. NORTH LANDFARM, LEA COUNTY, NM (NM-01-0015)

Dear Mr. Griswold:

On behalf of Goo Yea Landfarm, Inc., EA Engineering, Science, and Technology, Inc. PBC, has prepared this closure plan for the Goo Yea Landfarm, Inc. North Landfarm (Permit Number NM-01-0015) in Lea County. This closure plan has been prepared in accordance with Title 19, Chapter 15, Part 36 of New Mexico Administrative Code (19.15.36 NMAC).

The following attachments are included with this closure plan:

- Supporting figures and tables;
- A minor modification request form (C-137-A) that affects background determination for vadose zone release evaluation and proposes use of New Mexico Environment Department (NMED) Risk Assessment Guidelines for Site Investigation and Remediation (Soil Screening Guidelines [SSG]) Soil Screening Levels (SSL) as comparison criteria for where site specific risk assessment is required to establish protective closure endpoints;
- Signed affidavit that facility never accepted any non-hazardous oil-field liquid and semi-solid waste as requested in permit modification approved by Oil Conservation Division (OCD) on June 14, 2004. This modification provided for construction and installation of a stabilization basin to accept such wastes. The stabilization basin was not constructed, therefore no closure provisions are included herein.
- Specifications for seed mix and tackifier

1.0 LANDFARM GENERAL INFORMATION

The Goo Yea Landfarm, Inc. North Landfarm facility is located west of Stateline Road 769, 15 miles east and 7.5 miles north of Tatum, in SE/4 of Section 14, Township 11 South, Range 38 East, NMPM, Lea County, New Mexico (Figure 1). The facility consists of 7 cells (Figure 2) within a 160-acre permitted area that range in size from 2.0 to 3.5 acres. The aggregate landfarm

cells are distributed over a 27-acre area, with the surface area of treatment cells comprising approximately 20 acres. Therefore, only 27 acres of the 160-acre facility require closure/post closure care. Some 133 acres in the southern 80 percent or so of the facility were not disturbed; however, these 133 acres will be closed under this plan. The facility last received soils in 2005, and no additional soils have been or will be accepted for treatment.

1.1 PERMIT HISTORY

As demonstrated by item 6, Landfarm Operation, 711 Permit NM-01-0015 the landfarm operated to remediate total petroleum hydrocarbons, benzene, toluene, ethylbenzene and xylenes only through thin spreading and disking of soils.

On June 14, 2004 OCD approved a modification to NM-01-0015 that allowed Goo Yea Landfarm, Inc. Landfarm North to accept non-hazardous oil field liquid and semi-solid wastes for stabilization followed by landfarming. This approved modification was near the end of landfarm operation, and oil field liquid and semi-solid wastes were never received or treated at this location. A signed affidavit that attests to this is attached.

The landfarm has been idle since 2005 except for soil samples collected in 2016 to evaluate (1) background concentrations, (2) nature of the waste in the treatment cells, and (3) vadose zone concentrations. Since the landfarm has not been operated in over a decade, the current conditions will be established. However, what is presently known about the treated soil from 2016 samples is:

- Benzene was below §15.F.1 standard (0.2 mg/kg) in all samples collected (one sample from each of the seven cells);

- The sum of benzene, toluene, ethyl benzene, and total xylenes (e.g., total BTEX) was below §15.F.2 standard (50 mg/kg) in all cells;

- The sum of gasoline range organics (GRO) and diesel range organics (DRO) combined fractions were below 500 mg/kg, and combined GRO and DRO plus motor oil range organics (MRO), collectively total petroleum hydrocarbons (TPH), were below 2,500 mg/kg (§15.F.3 standards) in all cells; and

- Chloride was below the §15.F.4 standard 500 mg/kg in all cells for an estimated depth to groundwater between 50 and 100 feet below ground surface (bgs).

1.2 SCOPE OF CLOSURE PLAN

Based on the information provided above, principal scope elements of this closure plan include:

- Establish background for chloride in accordance with 19.15.36.B. NMAC so that release determination from the treatment cells to subsurface soil via vadose zone monitoring can be made. It is assumed and proposed in the minor modification attached to this plan that

any vadose zone detections of BTEX or TPH are anthropogenic and not natural, and therefore indicate release. This assumption precludes the need to establish background.

- Verification that soil in treatment cells has achieved Treatment Zone Closure Performance Standards.

- Background will not be established for 20.6.2.3103 A and B metals for treatment zone comparison. These metals will be compared to Soil Screening Levels for the appropriate conceptual site model (CSM) and exposure pathways (see Section 2.8 SSG) provided in Table A-1, SSG;

- Identify if any §3103 A and B metals exceed NMED SSL in treated soil. Metals concentrations will be compared to Table A-1, SSG industrial/occupational cancer and non-cancer, construction worker cancer and non-cancer, and soil leaching to groundwater (Target Soil Leachate Concentration) at a dilution-attenuation factor of 20 (DAF-20);

- Determine if a release to the vadose zone from the treatment cells has occurred in accordance with 19.15.36.15.E. NMAC. Release will be indicated by detections of BTEX and/or TPH (assumed anthropogenic and leached down from treatment cells) or chloride above background. Goo Yea Landfarm, Inc. will initiate release response as required; and

- Perform a risk assessment (i.e., develop CSM and establish pathways for comparison to SSLs) in accordance with New Mexico Environment Department Risk Assessment Guidelines for Investigation and Remediation (March 2017) (SSG) for:

    - 20.6.2.3103 A and B NMAC metals in the treatment zone;
    - All 20.6.2.3103 A and B NMAC constituents including applicable Toxic Pollutants as referenced in the event Release Response sampling of vadose zone is required (19.15.36.15.E.5);
    - "Soil tests" following site cleanup (19.15.36.18.C.4.f. NMAC)

2.0 CLOSURE MONITORING PROGRAM

Goo Yea Landfarm, Inc. has prepared this closure monitoring program to facilitate closure of the Goo Yea Landfarm, Inc. North Landfarm. No material has been accepted into the facility since 2005, and the facility can no longer accept new material. Therefore, the soil in the treatment zones were landfarmed prior to 2005, and 13 years of natural degradation has occurred since the landfarm was last in operation.

This closure monitoring plan has been prepared to (1) establish background for chloride concentrations in native soil, (2) verify soil in the treatment cells has been fully treated by the landfarming process to the Treatment Zone Closure Performance Standards, and (3) sample the vadose zone to determine if a release from the treatment zone to subsurface soil has occurred.

The monitoring and reporting regimen to support closure/post closure care is provided in Table 1.

2.1 BACKGROUND SAMPLING

Background soil sample chloride will be collected from randomly generated locations in the undisturbed portion of the permitted area (i.e., 133 acres south of treatment cells). These locations are shown on Figure 3. At each location, 16 aliquots of soil will be collected from 6 to 12 inches bgs from 16 sub-locations within a roughly10-foot radius of the coordinates provided on Figure 3. The sample location coordinated will be established in the field with a handheld global positioning system receiver.

The samples will consist of 16 aliquot composite samples from each of the 12 sample locations with individual aliquots collected between 6 and 12 inches below grade in undisturbed soil. Four ounces of soil will be collected for each aliquot and the 16 aliquots (64 ounces total soil volume) will be placed in a stainless-steel mixing bowl, homogenized, then the composite sample collected in accordance with Table 2.

Background data will be evaluated using *United States Environmental Protection Agency Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations (ProUCL)* and the ProUCL Users Guide at the time of analysis to determine if it is normally distributed and outliers will be identified. Then the summary statistics and 95% Upper Tolerance Limit (UTL) will be calculated. Rejection of chloride results as outliers may result in the need to collect additional chloride sample(s).

2.2 TREATMENT ZONE CLOSURE PERFORMANCE MONITORING

Treatment zone closure performance monitoring will be conducted (two events) in accordance with 19.15.36.15.F NMAC. One 4-aliquot composite sample will be collected each sampling event from each landfarm cell. Each aliquot will consist of 8-ounces of soil collected between 6 and 18 inches bgs, for 32 ounces total volume. The 4 aliquots will be homogenized in a stainless-steel mixing bowl then the composite samples collected in accordance with Table 3. Two sampling events are planned, and the locations of the composite samples for each event were randomly generated, GPS location coordinates established, and are shown on Figure 4.

The treatment zone sample results will be compared to the standards in 19.15.36.F.1 through 4 NMAC standards which includes 0.2 mg/kg benzene, 50 mg/kg total BTEX, GRO and DRO combined fractions of 500 mg/kg, and TPH of 2,500 mg/kg. If soil sample results indicate exceedance of these limits, then treatment will continue in accordance with 19.15.36.15.D. NMAC and treatment zone monitoring will be performed in accordance with 19.15.36.15.F. NMAC until the above standards are met. Continued treatment will trigger adjusting the closure cost discussed in Section 5.0 below.

Metals listed in 20.6.2.3103 A and B NMAC will be analyzed in each cell each treatment zone closure performance monitoring event and the results compared to SSL for appropriate exposure pathways developed in the CSM as described in Section 1.2 above.

The treatment zone closure performance monitoring regimen is provided in Table 1. Quality assurance requirements including analytes, sample methods, containers, sample management, and hold times are provided in Table 3.

2.3 VADOSE ZONE MONITORING

Vadose zone samples will be collected semi-annually in accordance with 19.15.36.15.E.2 NMAC. Semi-annually each cell will have four randomly selected independent soil samples collected from 3 to 4 feet below the original ground surface (and hence below the treated soil horizon). Randomly generated sample locations for the semi-annual events are shown on Figures 5 (first event) and 6 (second event). These samples will be analyzed for BTEX, TPH and chlorides as specified in Table 4. If a release is indicated, then sampling and analysis for the entire Section 3103 A and B analyte list shall be required as per (Table 4). Release will be indicated by any detection of BTEX or TPH which will be considered anthropogenic and leached down from the treatment cell, or chloride above the statistically derived background concentration.

The indication of a release as defined above may trigger release response in accordance with 19.15.29 NMAC, which is outside the scope of this closure plan.

Quality assurance requirements for vadose monitoring including analytes, sample methods, containers, sample management, and hold times are provided in Table 4.

3.0 CELL CLOSURE

Goo Yea Landfarm, Inc. will request OCD approval to close cells as soils are demonstrated to meet the Treatment Zone Closure Performance Standards discussed in Section 2.2 above. Cell closure requests will include laboratory reports, sample collection locations, and comparisons to applicable closure criteria. Once approval is received, in accordance with 19.15.36.15.G(1) and 19.15.36.18.A(6) NMAC, Goo Yea Landfarm, Inc. will leave remediated soils in place and re-vegetate (as needed) closed cells. Cells that do not meet Treatment Zone Closure Performance Standards will continue to be landfarmed and sampled biannually until standards are achieved.

The following options exist for final disposition of treatment cell soil whether or not continued treatment is required.

- If the treated soil meets the Treatment Zone Performance Standards, it will be left in place as provided in 19.15.36.15.G.1.
- If continued treatment is required, it must be completed within 5 years, the soil will be removed and disposed at permitted facility with the caveat an extension may be requested (19.15.36.15.G.2. NMAC).
- Continued treatment may require adjusting the performance bond (19.15.36.15.G.3. NMAC).

3.1 CONTINUED LANDFARMING

If a landfarm cell exceeds Treatment Zone Closure Performance Standards, it will continue to be landfarmed until the closure criteria for BTEX, TPH and chloride are achieved. At that time, 20.6.2.3103 A and B NMAC metals sampling will be reinitiated. The landfarming will consist of biweekly disking and addition of moisture as needed.

Under Permit NM-01-0015 disking should be occurring biweekly at present; however, based on the soil sample results discussed in Section 1.1, it is presumed the treated soils meet standards. Since substantial vegetation exists on the treated cells, demonstration that Treatment Zone Closure Performance Standards have been met will allow the existing vegetation to be augmented with seeding by drill in areas and broadcast seeding in others to enhance vegetation without destroying the current population.

3.2 CLOSURE REPORTING

Reporting during closure and post-closure care will be in accordance with Table 1. Reports will be prepared and submitted semi-annually until closure is complete. Closure reports may also be provided periodically as cells or areas are closed if continued treatment is required.

Semi-annual closure reports will be submitted in Year 1 (Figure 7), and include:

- Summary of background chloride sampling and ProUCL statistical evaluation in the first semi-annual closure report;
- Summary tables of treatment zone analytical results for benzene, total BTEX, GRO and DRO combined fractions, TPH, chloride, and 20.6.2.3103 A and B NMAC metals;
- Summary tables of vadose zone monitoring results for BTEX, TPH and chloride, comparison to criteria provided in Section 2.3 of this closure plan to evaluate if a release has occurred;
- Sample location coordinates and depiction of sample locations on a figure;
- Photographic documentation of site activities;
- Comparison of benzene, total BTEX, GRO and DRO combined fractions to numeric standards of 19.15.36.15.F. NMAC Treatment Zone Performance Standards;
- Comparison of metals to NMED SSLs for appropriate pathways;
- Recommendations for additional treatment or removal if required to meet 19.15.36.15.G. NMAC timeline and requirements; and
- Cost evaluation and recommendations for closure bond adjustment as warranted if additional treatment or release to vadose zone is indicated.

After the landfarm cells meet Treatment Zone Performance Standards, formal closure will be requested. The schedule (Figure 7) shows all cells requesting closure in a single report in Year 1 Month 8

predicated on no additional treatment required. If additional treatment or removal is required, the treatment zone monitoring will be performed in accordance with 19.15.36.15.D. NMAC for TPH and chloride during continued treatment.

As cells are closed, partial release of financial assurance will be requested in accordance with 19.15.36.18.B.1. NMAC. The remainder of financial assurance will be maintained to ensure revegetation during post-closure care.

4.0 POST-CLOSURE CARE

During closure operations, Goo Yea Landfarm, Inc. will continue to maintain the landfarm to protect fresh water, public health, safety and the environment. In accordance with 19.15.36.18.E, the post closure period will be three years following final OCD approval of cell closures. During that period, Goo Yea Landfarm, Inc. will regularly inspect and maintain required vegetation.

4.1 REMOVAL OF FACILITY STRUCTURES AND SITE CLEANUP

Once Treatment Zone Performance Standards are met and cell closure approved by OCD, Goo Yea Landfarm, Inc. proposes to:

- Leave and contour remediated and/or replaced soils in place
- Conduct a baseline vegetation survey to evaluate current populations and areas needing seeding;
- Re-vegetate and allow the property to return to its natural state (Section 4.2 below);
- Fencing around the facility is owned by the adjoining ranch and will be left in place;
- Existing berms will be leveled and revegetated;
- The main road runs along the north side of the treatment cells and provides access to the 160-acre parcel – accordingly, it will be left in place to allow access; and
- Complete site cleanup and test soils for contamination (19.15.36.18.C.4.f. NMAC).

These activities begin with one month of OCD cell closure approval as shown on Figure 7 (Schedule).

4.2 REVEGETATION

Based on current satellite imagery (Google Earth 1-19-2018), it appears that around 4 to 8 acres of revegetation in parts of Cells 1, 4, 5 and 7 is required. An additional two acres of revegetation is estimated for the leveled berms, bringing the total revegetated acreage to 10. Finally, the revegetation includes broadcast over-seeding in existing vegetated areas to ensure adequate native vegetation in plant type and density.

In accordance with 19.15.36.18.A.6 NMAC, re-vegetation will be in the area of landfarm cells and adjacent berms and/or disturbed area (note the undisturbed 133 acres in the southern portion of facility

will not be revegetated) and shall consist of establishment of a vegetative cover equal to 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire, or other intrusion damaging to native vegetation) and maintenance of the cover will continue through 2 successive growing seasons. Baseline cover (i.e., existing vegetation) will be determined using Daubenmire Frames and transects, or another approved method (Daubenmire, R.F. 1959. Canopy coverage method of vegetation analysis. *Northwest Science* 33:43-64). Following baseline cover survey and seeding, cover will be evaluated annually until the end of post-closure care. Revegetation is scheduled (Figure 7) following demonstration that Treatment Zone Performance Standards have been met and following baseline vegetation survey.

If the baseline cover evaluation indicates sufficient population of noxious weeds and/or invasive non-native species to prevent achieving the cover requirement of 19.15.36.A.6. NMAC, then they will be controlled by herbicide or primary tillage (e.g., offset disking, plowing, chisel plowing) prior to initiating seeding operations.

Revegetation will use a native seed mix that satisfies 19.15.36.18.A.6. NMAC species requirements and may include a mix of Blue Grama, Indian Ricegrass, Western Wheatgrass, Sideoats Grama, Galleta, Buffalograss, Alkali Sacaton, Sheep Fescue, and Little Bluestem (for example Western Wonder Santa Fe Trail mix at http://www.shop.curtisseed.com/santa-fe-trail-grass-blend or approved equivalent).

Seedbed preparation will consist of tilling the seedbed with a disc, harrow, or chiseling tools to at least 4 inches deep. Competitive vegetation will be uprooted during seedbed preparation, and the soil will be worked to a surface free of clods, large stones, or other deleterious material that could affect seeding. Moisture will be added to facilitate proper tilling and soil moisture content for seeding. Seeding will occur at the rate of seedbed preparation. Fertilizer will be uniformly applied to the prepared seedbed at a rate appropriate for the seed mix.

The seed mix will be uniformly applied at a rate of 5 pounds per acre or in accordance with manufacturer specification for selected seed mix. Seeding will be performed with a seed drill. Seeded areas will be isolated from vehicle travel. To the degree practicable, seeding will be performed between June 1 and August 31. If performing cool-season dormant seeding, a commercial fungicide will be applied to the seed. Cool-season dormant seeding will occur when the soil is both tillable and not frozen.

Seed will be planted with a seed drill approximately ½-inch deep, with a maximum depth of 1 inch. Distance between drilled furrows will not exceed 8 inches.

Over-seeding vegetated areas will be accomplished at a rate of 5 lbs/acre seed spread with a broadcast seed spreader. Since over-seeding is specified in vegetated areas only, no seed bed preparation or mulching is required. The over-seeding will be completed concurrent with seedbed preparation and seeding as shown on the schedule (Figure 7).

Once an area has been seeded (except over-seeded areas), the area will be mulched with hay or straw mulch. Mulching will not be performed if the wind velocity exceeds 15 mph. Hay and straw mulch will have at least 50% of fibers exceeding 10 inches long on the ground after application. The mulch will be spread uniformly over the area either by hand or with a

mechanical mulch spreader. The rate of hay mulch application will be at least 2 ½-ton per acre of air-dry hay. The rate of straw mulch will be 1 ½-ton per acre. Hay and straw mulch will be anchored with the a tackifier (Profile Products Tornado Tack ST-1000 or approved equivalent) applied in accordance with manufacturer specifications.

4.3 POST CLOSURE REPORTING

Post-closure reports will be submitted semi-annually until final facility closure is requested, and will include:

- Initial baseline vegetation surveys (treatment cell counts and background) and recommendations for drill seeding, broadcast seeding, noxious weed and/or invasive plant removal;
- Documentation of site closure work, including berm removal and regrading, site clean-up, and soil testing results (19.15.36.18.C.4. e and f NMAC);
- Photographic documentation of site activities;
- Results of subsequent annual vegetation surveys and comparison to 19.15.36.18.A.6. NMAC criteria;
- Additional site activities including additional seeding as required, noxious weed and/or invasive plant control; and
- Cost evaluation and recommendations for closure bond adjustment as warranted if additional seeding, noxious weed and/or invasive plant removal, or select soil removal is required to meet revegetation criteria.

These semi-annual post closure care reports will be included in the final closure report for completeness. The final closure report will document requirements of 19.15.36.18 NMAC have been achieved, and release of financial assurance (e.g., closure bond) requested.

5.0 FINANCIAL ASSURANCE

A cost-to-closure estimate for Goo Yea Landfarm, Inc. North Landfarm is included (Table 5) that provides estimated costs necessary to implement Treatment Zone Performance Standard monitoring in landfarm cells, vadose zone monitoring, closure reporting and requests, and post-closure-care (structure removal, vegetation, semi-annual reporting, etc.). The cost-to-closure is based on the following assumptions and stipulations:

- Soil in the treatment cells will meet Treatment Zone Performance Standards (19.15.36.15.F. NMAC) and OCD will approve cell closure based on sampling results; however, if any or all cells require continued treatment and/or removal, this financial assurance analysis will be evaluated and amended to capture these costs;
- Analytical chemistry costs are based on 2018 rates provided by Test America;

- Mobilization distance and time are based on travel to site from Hobbs, New Mexico;

- Equipment mobilization for seed bed preparation, seeding, mulching, and continued landfarming if required is from Hobbs, New Mexico;

- Revegetation estimates are based on current satellite imagery; however, the baseline vegetation survey will reveal current population and density of native vegetation present, occurrence and degree of noxious weeds and/or non-native plants, and areas requiring seed bed preparation and seeding, over-seeding, and weed and/or invasive plant control which way may result in reanalysis of closure costs and bond adjustment;

- Treatment zone and vadose zone soils meet §15.F standards based on available soil data; therefore, neither continued landfarming nor release response will be required;

- Notwithstanding the previous assumption, if impacted soils are discovered that require treatment, this cost-to-closure estimate will be amended for treatment (e.g., disking, tilling and watering) of affected soils and bond levels adjusted; and

- Finally, if release to the vadose zone or other contamination requires cleanup in accordance 19.15 Part 29 or 30, financial assurance will not be released until these cleanups are complete and the closure costs may have to be amended and the bond increased.

6.0 SCHEDULE

Goo Yea Landfarm, Inc. anticipates final closure in accordance with the Schedule (Figure 7). The schedule is based on treated soil in the landfarm cells achieving Treatment Zone Closure Performance Standards (19.15.36.15.F. NMAC) in the first year of closure plan implementation. Monitoring will continue as provided in Section 2. Requests to close cells may be submitted on a cell by cell basis or altogether as respective landfarm treatment cells meet performance standards.

If any cells require additional treatment, then:

- Treatment shall not exceed 5 years unless extended or the soil will be removed and transported to OCD permitted landfill (19.15.36.15.G.2. NMAC); and

- Bond costs adjusted accordingly (19.15.36.15.G.3. NMAC);

Once Treatment Zone Closure Performance standards are met in a particular cell, Goo Yea Landfarm, Inc. will closure of that cell as shown in the schedule (Figure 7). Upon OCD approval of cell closure, post-closure-care activities will commence (Figure 7).

Once closure of all cells is received, Goo Yea Landfarm, Inc. will initiate post-closure care activities to the remainder of the property as described in Section 4.0 and Figure 7.

Upon termination of the post closure period, Goo Yea Landfarm, Inc. will submit a final report

demonstrating fulfillment of post closure requirements and will request a release of financial assurance.

If you have any questions, please contact me at 505-224-9013 extension 1509.

Sincerely

Jay T. Snyder, P.E., P.G.
Project Manager

Attachments: Figure 1 – Site Location
Figure 2 – Facility Map
Figure 3 – Proposed Background Sample Locations
Figure 4 – Proposed Treatment Zone Sample Locations
Figure 5 – Proposed Vadose Zone Sample Locations – First Event
Figure 6 – Proposed Vadose Zone Sample Locations – Second Event
Figure 7 – Schedule for Closure Plan Implementation
Table 1 – Sampling and Reporting Regimen for Landfarm Closure
Table 2 – Background Sample Regimen
Table 3 – Treatment Zone Closure Performance Sampling Regimen
Table 4 – Vadose Zone Release Determination Sampling Regimen
Table 5 – Closure Cost Estimate

Attachment 1 – Minor Modification Request – Form C-137-A
Attachment 2 – Affidavit
Attachment 3 – Seed and Tackifier Manufacturer's Cut Sheets

TABLES

TABLE 1
SAMPLING AND REPORTING REGIMEN FOR LANDFARM CLOSURE
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015), LEA COUNTY, NEW MEXICO

Purpose	Sample Requirements	Sample Frequency	Analyte	Analytical Requirements	Performance Criteria
Treatment Zone Closure Performance Standards (19.15.36.15.F NMAC)	One composite sample consisting of 4 discrete aliquots per cell randomly selected	Within 1 month of closure plan approval then 6 months thereafter[1] (2 events total)	Benzene	A	0.2 mg/kg
			Total BTEX	A	50 mg/kg
			GRO + DRO	A	500 mg/kg
			TPH	A, B	2,500 mg/kg
			Chloride[2]	A	500 mg/kg
			Section 3103 Metals	A	NMED SSL
Vadose Zone Monitoring (19.15.36.15.E)	Four randomly selected, independent samples from each cell collected from 3-4 feet beneath the original land surface (19.15.36.15.E.2 NMAC)	Within 1 month of closure plan approval then 6 months thereafter[3] (two events total)	Total BTEX	A	Any Detection
			TPH	A, B	Any Detection
			Chloride	A	Any Detection
			Full 3103 analyte list[3]	A	NMED SSL
Background Determination (19.15.36.15.B)	Twelve composite samples from 16 aliquots collected from 6-12 inches bgs within 10-foot radius of random sample location	Within 1 month of closure plan approval	Chloride	EPA 300.1	ProUCL statistical evalution
Reporting	Treatment zone closure performance and vadose zone monitoring results	Semi-annually in accordance with 19.15.36.18.C.4.g	N/A	N/A	N/A

Notes:

1 Assumes treatment zone closure performance standards are achieved in each of two semi-annual sampling events; if not, treatment zone monitoring continues in accordance with 19.15.36.15.F

2 Based on depth to groundwater greater than 50 feet but less than 100 feet

3 If release is indicated by benzene, BTEX, GRO+DRO, TPH, or chloride sampling and analysis, then immediate resampling for BTEX, TPH, chloride and 20.6.2.3103 A and B NMAC constituents

"3103" Refers to 20.6.2 NMAC Section 3103 Standards

NMED SSL = New Mexico Environment Department Soil Screeing Levels in Table A-1, NMED Risk Assessment Guidelines for Site Investigation and Remediation March 2017

BTEX = benzene, toluene, ethyl benzene, and xylenes

GRO = gasoline range organics

DRO = diesel range organics

TPH = total petroleum hydrocarbons = GRO + DRO + Motor Oil Range Organics

mg/kg = milligrams per kilogram

N/A = not applicable

A = analytical regimen in Table 2 and Table 3 of this document

B = C 137 A Minor Modification analytical regimen as proposed in this document and in Tables 3 and 4

TABLE 2
BACKGROUND SAMPLING REGIMEN
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015)
LEA COUNTY, NEW MEXICO

Analyte	Method	Sample Container	Holding Time	Preservative
Chloride (Cl)	EPA 300.1	4 oz jar	28 days	Cool 4°C

Note:

Twelve 16-point composite samples will be collected from random locations. The 16 aliquots per sample shall be randomly selected from within a 10-foot radius of the random sample point and will be collected from 6-12 inches below ground surface

Background will be established using EPA ProUCL statistical software. If outliers are rejected, additional random sample(s) may be required.

TABLE 3
TREATMENT ZONE CLOSURE PERFORMANCE SAMPLING REGIMEN
GOO YEA LANDFARM NORTH (NM-01-0015)
LEA COUNTY, NEW MEXICO

ORGANICS	Method	Sample Container	Holding Time	Preservative
Benzene	EPA 8021B	4 oz jar	14 days	Cool 4°C
Toluene	EPA 8021B	4 oz jar	14 days	Cool 4°C
Ethyl Benzene	EPA 8021B	4 oz jar	14 days	Cool 4°C
Xylenes	EPA 8021B	4 oz jar	14 days	Cool 4°C
Gasoline Range Organics (GRO)	EPA 8015D	4 oz jar	14 days	Cool 4°C
Diesel Range Organics (DRO)	EPA 8015D	4 oz jar	14 days	Cool 4°C
Motor Oil Range Organics (MRO)	EPA 8015D	4 oz jar	14 days	Cool 4°C
SECTION 3103 METALS				
Antimony (Sb)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Arsenic (As)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Barium (Ba)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Beryllium (Be)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Cadmium (Cd)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Chromium (Cr)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Lead (Pb)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Total Mercury	EPA 6010B	4 oz jar	180 days	Cool 4°C
Selenium (Se)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Silver (Ag)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Thallium (Tl)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Uranium (U)	EPA 6020A	4 oz jar	180 days	Cool 4°C
Copper (Cu)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Iron (Fe)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Manganese (Mn)	EPA 6010B	4 oz jar	180 days	Cool 4°C
Zinc (Zn)	EPA 6010B	4 oz jar	180 days	Cool 4°C
ANIONS				
Chloride (Cl)	EPA 300.1	4 oz jar	28 days	Cool 4°C

Notes:

One 4-point composite sample will be collected per treatment cell with each discrete sample collected from 0.5-1-foot depth in treated soil

Section 3103 = 20.6.2.3103.A and B NMAC

Treatment zone closure performance samples will be collected within one month of closure plan approval and 6-months thereafter

Contingency landfarming treatment zone monitoring will be conducted semi-annually until standards are met then Closure Performance Standards Monitoring will ensue

Total Petroleum Hydrocarbons (TPH) is sum of GRO + DRO + MRO

TABLE 4
VADOSE ZONE RELEASE DETERMINATION SAMPLING REGIMEN
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015)
LEA COUNTY, NEW MEXICO

Analyte	Citation	Purpose	Method	Container	Holding Time	Preservative
Benzene	19.15.36.15.E NMAC	A and B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Toluene	19.15.36.15.E NMAC	A and B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Ethyl Benzene	19.15.36.15.E NMAC	A and B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Xylenes	19.15.36.15.E NMAC	A and B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Carbon Tetrachloride	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,2-dichloroethane (EDC)	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,1-Dichloroethene	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Perchloroethene (PCE)	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Trichloroethene	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Methylene chloride	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Chloroform	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,1-Dichloroethane	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,2-Dibromoethane (EDB)	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,1,1-Trichloroethane	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,1,2-Trichloroethane	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
1,1,2,2-Tetrachloroethane	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Vinyl chloride	20.6.2.3103.A NMAC	B	EPA 8260B	4 oz jar	14 days	Cool 4°C
Phenols	20.6.2.3103.A NMAC	B	EPA 9066	4 oz jar	28 days	Cool 4°C
Naphthalene	20.6.2.3103.A NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
1-Methylnaphthalene	20.6.2.3103.A NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
2-Methylnaphthalene	20.6.2.3103.A NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
Benzo(a)pyrene	20.6.2.3103.A NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
cis 1,2-Dichloroethene	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
trans 1,2-Dichloroethene	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
1,2-Dichloropropane	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
Styrene	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
1.2-Dichlorobenzene	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
1,4-Dichlorobenzene	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
1,2,4-Trichlorobenzene	20.6.2.3103.A NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C

TABLE 4
VADOSE ZONE RELEASE DETERMINATION SAMPLING REGIMEN
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015)
LEA COUNTY, NEW MEXICO

Analyte	Citation	Purpose	Method	Container	Holding Time	Preservative
Atrazine	20.6.2.3103.A NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
Pentachlorophenol	20.6.2.3103.A NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
Methyl tertiary butyl ether	20.6.2.3103.B NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C
Gasoline Range Organics (GRO)	19.15.36.15.E NMAC	A and B	EPA 8015D	4 oz jar	14 days	Cool 4°C
Diesel Range Organics (DRO)	19.15.36.15.E NMAC	A and B	EPA 8015D	4 oz jar	14 days	Cool 4°C
Motor Oil Range Organics (MRO)	19.15.36.15.E NMAC	A and B	EPA 8015D	4 oz jar	14 days	Cool 4°C
PCBs	20.6.2.3103.A NMAC	B	EPA 8082A	8 oz jar	14 days	Cool 4°C
Cyanide	20.6.2.3103.A NMAC	B	EPA 9012B	4 oz jar	14 days	Cool 4°C
SECTION 3103 METALS						
Anitmony	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Arsenic	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Barium	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Beryllium	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Cadmium	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Chromium	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Lead	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Selenium	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Silver	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Thallium	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Uranium	20.6.2.3103.A NMAC	B	EPA 6020A	8 oz jar	180 days	Cool 4°C
Copper	20.6.2.3103.B NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Iron	20.6.2.3103.B NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Manganese	20.6.2.3103.B NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Zinc	20.6.2.3103.B NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C
Total Mercury	20.6.2.3103.A NMAC	B	EPA 6010C	8 oz jar	180 days	Cool 4°C

TABLE 4
VADOSE ZONE RELEASE DETERMINATION SAMPLING REGIMEN
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015)
LEA COUNTY, NEW MEXICO

Analyte	Citation	Purpose	Method	Container	Holding Time	Preservative
ANIONS						
Chloride	19.15.36.15.E NMAC	A and B	EPA 9056A	4 oz jar	28 days	Cool 4°C
Fluoride	20.6.2.3103.A NMAC	B	EPA 9056A	4 oz jar	28 days	Cool 4°C
Nitrate (separate container)	20.6.2.3103.A NMAC	B	EPA 9056A	4 oz jar	48 hours	Cool 4°C
Nitrite	20.6.2.3103.A NMAC	B	EPA 9056A	4 oz jar	28 days	Cool 4°C
Sulfate	20.6.2.3103.B NMAC	B	EPA 9056A	4 oz jar	28 days	Cool 4°C
OTHER						
Radium 226	20.6.2.3103.A NMAC	B	EPA 903.0	4 oz jar	180 days	Cool 4°C
Radium 228	20.6.2.3103.A NMAC	B	EPA 904.0	4 oz jar	180 days	Cool 4°C
pH	20.6.2.3103.B NMAC	B	EPA 9054D	4 oz jar	28 days	Cool 4°C
TOXIC POLLUTANTS[1]						
Volatile Toxic Pollutants	20.6.2.7.T.2. NMAC	B	EPA 8260B	8 oz jar	14 days	Cool 4°C
Semi-Volatile Toxic Pollutants	20.6.2.7.T.2. NMAC	B	EPA 8270D	8 oz jar	14 days	Cool 4°C

Notes:

1 Toxic Pollutants evaluated will include those on standard analyte lists for EPA Method 8260B for volatile organics, and EPA Method 8270D for semi-volatile organics; non-oilfield waste Toxic Pollutants (i.e., explosive compounds, perfluorinated compounds, nitrosomines) have been removed from sampling regimen per Minor Modification C-137A

Purpose: A = evaluate if release to vadose zone has occurred; B = release response in accordance with 19.15.36.15.E(5);

Total Petroleum Hydrocarbons (TPH) is sum of GRO + DRO + MRO

TABLE 5
CLOSURE COST ESTIMATE
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015), LEA COUNTY, NEW MEXICO

Item	Item Description	Units	Unit Rate	Number Units	Extended Cost
1	**Background Sampling for Chloride**				
1.a	Mobilization/demobilization				
1.a.i	Labor	Hr	$ 75	8	$ 600
1.a.ii	Mileage	Mile	$ 0.55	400	$ 220
1.b	Sampling and Analysis				
1.b.i	Labor (two hours per composite sample)	Hr	$ 75	24	$ 1,800
1.b.ii	Analytical Chemistry	Sample	$ 50	12	$ 600
1.b.iii	Sample shipping	Lump	$ 75	1	$ 75
1.b.iii	Equipment and supplies	Lump	$ 100	1	$ 100
				Subtotal	$ 3,395
				Number Events	1
				Total Task Cost	**$ 3,395**
2	**Treatment Zone Sampling**				
3.a	Mobilization/demobilization				
3.a.i	Labor	Hr	$ 75	2	$ 150
3.a.ii	Mileage	Mile	$ 0.55	100	$ 55
3.b	Sampling and Analysis				
3.b.i	Labor (one hour per sample)	Hr	$ 75	7	$ 525
3.b.ii	Analytical Chemistry (BTEX, TPH, Chloride, metals)	Sample	$ 300	7	$ 2,100
3.b.iii	Sample shipping	Lump	$ 75	1	$ 75
3.b.iv	Equipment and supplies	Lump	$ 100	1	$ 100
				Subtotal	$ 3,005
				Number Events	2
				Total Task Cost	**$ 6,010**
3	**Semi-Annual Vadose Zone Sampling and Analysis**				
3.a	Mobilization/Demobilization				
3.a.i	Labor	Hr	$ 75	6	$ 450
3.a.ii	Mileage	Mile	$ 0.55	300	$ 165
3.a.iii	Equipment Mobilization/Demobiliation	Mile	$ 3.00	300	$ 900

TABLE 5
CLOSURE COST ESTIMATE
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015), LEA COUNTY, NEW MEXICO

Item	Item Description	Units	Unit Rate	Number Units	Extended Cost
3.b	Sampling and Analysis				
3.b.i	Labor (0.5 discrete samples per hour)	Hr	$ 75	14	$ 1,050
3.b.ii	Analytical Chemistry (BTEX, TPH, Chloride)	Sample	$ 165	28	$ 4,620
3.b.iii	Sample shipping	Lump	$ 150	1	$ 150
3.b.iv	Equipment and supplies	Lump	$ 100	1	$ 100
3.b.v	Excavator and operator	Day	$ 800	1	$ 800
				Subtotal	$ 8,235
				Number Events	2
				Total Task Cost	**$ 16,470**
4	**Semi-Annual Closure Reporting**				
4.a	Report Preparation				
4.a.i	Labor	Hr	$ 100	8	$ 800
4.a.ii	Photocopies, postage, other expenses	Lump	$ 25	1	$ 25
				Subtotal	$ 825
				Number Events	2
				Total Task Cost	**$ 1,650**
5	**Baseline and Post Closure Vegetation Monitoring**				
5.a	Mobilization/demobilization				
5.a.i	Labor	Hr	$ 75	2	$ 150
5.a.ii	Mileage	Mile	$ 0.55	100	$ 55
5.b	Species and numeration				
5.b.1	Labor	Hr	$ 75	6	$ 450
	Equipment and supplies	Lump	$ 50	1	$ 50
				Subtotal	$ 705
				Number Events	4
				Total Task Cost	**$ 2,820**
6	**Level and Contour Berms**				
6.a	Mobilization/demobilization				
6.a.i	Inspection Labor	Hr	$ 75	4	$ 300
6.a.ii	Inspection Mileage	Mile	$ 0.55	200	$ 110

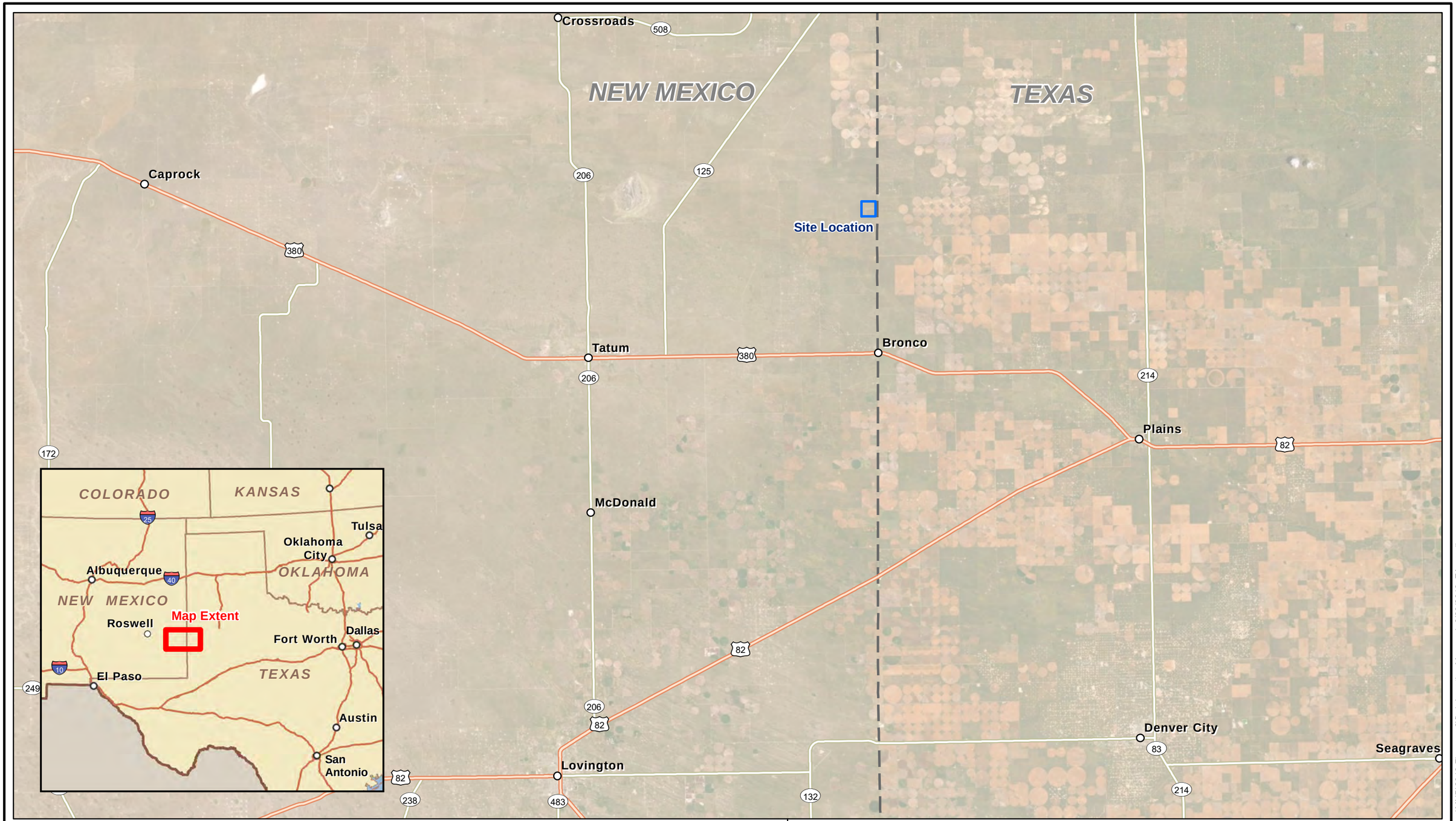
TABLE 5
CLOSURE COST ESTIMATE
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015), LEA COUNTY, NEW MEXICO

Item	Item Description	Units	Unit Rate	Number Units	Extended Cost
6.a.iii.	Dozer and Operator	Hr	$ 125	4	$ 500
6.a.iv.	Dozer and Operator Mileage	Mile	$ 1.50	200	$ 300
6.b	Earth Work and Inspection				
6.b.i	Dozer and Operator	Hr	$ 125	12	$ 1,500
6.b.ii	Inspection Labor	Hr	$ 75	4	$ 300
				Total Task Cost	**$ 1,800**
7	**Revegetation - Prepare Seed Bed and Seed Drill (8 acres total)**				
7.a	Mobilization/demobilization				
7.a.i	Inspection Labor (inspection every 2 acres)	Hr	$ 75	8	$ 600
7.a.ii	Inspection Mileage	Mile	$ 0.55	400	$ 220
7.a.iii	Operator Mobilization Labor	Hr	$ 35	16	$ 560
7.a.iv	Operator Mobilization (8 round trips x 3 operators (24 at 100 mi per mob/demob)	Mile	$ 0.55	2400	$ 1,320
7.a.v	Equipment Mobilization/Demobilization (3 mobilizations at 100 miles/mob/demob (1 for each of seed drill, mulch blower and water truck)	Mile	$ 3.00	300	$ 900
7.b	Prepare Seed Bed, Seed, Mulch, Tackify, Inspect (per acre)				
7.b.i	Seed Drill and Operator	Hr	$ 100	6	$ 600
7.b.ii	Straw Blower and Operator	Hr	$ 100	6	$ 600
7.b.iii	Water Truck and Operator	Hr	$ 90	6	$ 540
7.b.iv	Water for Tackifier ($150/5,000 gallons)	Load	$ 150	2	$ 300
7.b.v	Inspection Labor	Hr	$ 75	0.5	$ 38
7.b.vi	Seed $16/lb at 5 lb/acre = $80/acre	Acre	$ 80.00	1	$ 80
7.b.vii	Fertilizer 100 lb/acre at $1/lb = $100/acre	Acre	$ 100.00	1	$ 100
7.b.viii	Mulch (1 ton/acre at $120/ton)	Acre	$ 120.00	1	$ 120
7.b.ix	Mulch Delivery ($200/load, 8 tons/load)	Ton	$ 25.00	1	$ 25
7.b.x	Tackifier	Acre	$ 200.00	1	$ 200
					$ 2,378
				Number Acres 8	$ 19,020
				Total Task Cost	**$ 22,620**

TABLE 5
CLOSURE COST ESTIMATE
GOO YEA LANDFARM, INC. NORTH LANDFARM (NM-01-0015), LEA COUNTY, NEW MEXICO

Item	Item Description	Units	Unit Rate	Number Units	Extended Cost
8	**Revegetation - Broadcast Overseeding (19 Acres - 2 days)**				
8.a	Mobilization/demobilization				
8.a.i	Inspection Labor (two trips)	Hr	$ 75	4	$ 300
8.a.ii	Inspection Mileage	Mile	$ 0.55	200	$ 110
8.a.iii	Operator Mobilization Labor (two trips)	Hr	$ 35	4	$ 140
8.a.iv	Operator Mobilization (2 round trips)	Mile	$ 0.55	200	$ 110
8.b	Broadcast Seed and Fertilizer, Inspect				
8.b.i	Equipment and Operator	Hr	$ 100	12	$ 1,200
8.b.ii	Inspection Labor	Hr	$ 75	4	$ 300
8.b.v	Seed $16/lb at 5 lb/acre = $80/acre	Acre	$ 80.00	19	$ 1,520
8.b.vi	Fertilizer 100 lb/acre at $1/lb = $100/acre	Acre	$ 100.00	19	$ 1,900
					$ 3,130.00
8	**Semi-Annual Closure Reporting**				
8.a	Report Preparation				
8.a.i	Labor	Hr	$ 100	8	$ 800
8.a.ii	Photocopies, postage, other expenses	Lump	$ 25	1	$ 25
				Subtotal	$ 825
				Number Events	5
				Total Task Cost	**$ 4,125**
9	**Final Post-Closure Report**				
9.a	Report Preparation				
9.a.i	Labor	Hr	$ 100	8	$ 800
9.a.ii	Photocopies, postage, other expenses	Lump	$ 25	1	$ 25
				Subtotal	$ 825
				Number Events	1
				Total Task Cost	**$ 825**
				Total Closure, Revegatation, and Post Closure Cost for Landfarm	**$ 68,485**

FIGURES



N

Miles
0 5 10
1 in = 5 miles

Image Source: ArcGIS Imagery, 2018.

Figure 1
Site Location
Goo Yea Landfarm, Inc.
Lea County, New Mexico

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Cell	Area	
	Square Feet	Acres
1	139,481	3.2
2	152,373	3.5
3	133,740	3.1
4	115,423	2.7
5	125,544	2.9
6	98,305	2.3
7	84,997	2.0

Cell

Image Source: Google Earth Pro, 2018.

0 400 Feet

1 inch = 400 Feet

N

Figure 2
Facility Map
Goo Yea Landfarm, Inc.
Lea County, New Mexico

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Background Samples		
ID	Longitude	Latitude
BG-01	-103.06381	33.36421
BG-02	-103.06443	33.36394
BG-03	-103.05919	33.36340
BG-04	-103.06690	33.36192
BG-05	-103.06421	33.36380
BG-06	-103.06481	33.36166
BG-07	-103.06249	33.36360
BG-08	-103.06708	33.36337
BG-09	-103.06667	33.36177
BG-10	-103.06534	33.36327
BG-11	-103.06199	33.36351
BG-12	-103.06337	33.36299

Legend

- Proposed Background Sample*
- Landfarm Cell

Note:
Coordinates are in North American Datum 1983.

*Each background sample will consist of a16-aliquot sample with the 16 aliquots collected from within a 10-foot radius of the designated location. Samples will be collected at a depth of 6-12 inches below ground surface.

Image Source: Google Earth Pro, 2018.

0 200 Feet

1 inch = 200 Feet

N

Figure 3
Proposed Background Sample Locations

Goo Yea Landfarm, Inc.
Lea County, New Mexico

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Treatment Zone Performance Samples		
ID	Longitude	Latitude
TZ-01-A	-103.06720	33.36532
TZ-01-B	-103.06747	33.36465
TZ-02-A	-103.06601	33.36450
TZ-02-B	-103.06572	33.36455
TZ-03-A	-103.06424	33.36541
TZ-03-B	-103.06438	33.36476
TZ-04-A	-103.06296	33.36525
TZ-04-B	-103.06361	33.36541
TZ-05-A	-103.06150	33.36512
TZ-05-B	-103.06225	33.36530
TZ-06-A	-103.06110	33.36497
TZ-06-B	-103.06087	33.36513
TZ-07-A	-103.05987	33.36525
TZ-07-B	-103.05976	33.36503

Legend

- Proposed Treatment Zone Performance Sample*
- Landfarm Cell

Note:
Coordinates are in North American Datum 1983.

*Each treatment zone sample will consist of 4 discrete samples collected from within a 10-foot radius of the designated location. Samples will be collected at a depth of 6-18 inches below ground surface.

Image Source: Google Earth Pro, 2018.

0 200 Feet

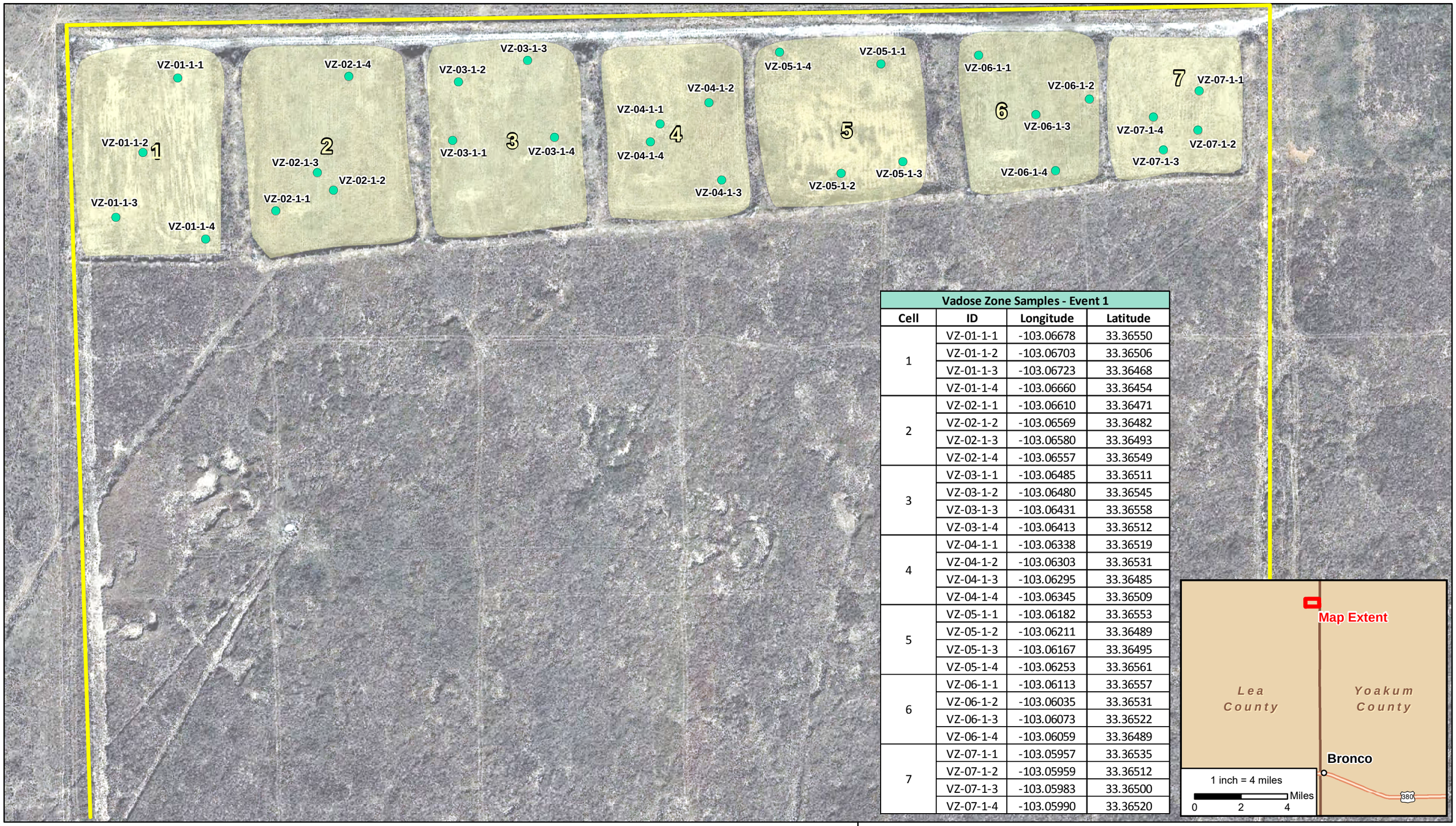
1 inch = 200 Feet

N

Figure 4
Proposed Treatment Zone Sample Locations

Goo Yea Landfarm, Inc.
Lea County, New Mexico

P:\gis\Projects\Goo Yea Inc\MXD\2019 Figures v2\Fig4_GooYea_Treatment Zone.mxd 6/28/2019 EA rmullen



Vadose Zone Samples - Event 1			
Cell	**ID**	**Longitude**	**Latitude**
1	VZ-01-1-1	-103.06678	33.36550
	VZ-01-1-2	-103.06703	33.36506
	VZ-01-1-3	-103.06723	33.36468
	VZ-01-1-4	-103.06660	33.36454
2	VZ-02-1-1	-103.06610	33.36471
	VZ-02-1-2	-103.06569	33.36482
	VZ-02-1-3	-103.06580	33.36493
	VZ-02-1-4	-103.06557	33.36549
3	VZ-03-1-1	-103.06485	33.36511
	VZ-03-1-2	-103.06480	33.36545
	VZ-03-1-3	-103.06431	33.36558
	VZ-03-1-4	-103.06413	33.36512
4	VZ-04-1-1	-103.06338	33.36519
	VZ-04-1-2	-103.06303	33.36531
	VZ-04-1-3	-103.06295	33.36485
	VZ-04-1-4	-103.06345	33.36509
5	VZ-05-1-1	-103.06182	33.36553
	VZ-05-1-2	-103.06211	33.36489
	VZ-05-1-3	-103.06167	33.36495
	VZ-05-1-4	-103.06253	33.36561
6	VZ-06-1-1	-103.06113	33.36557
	VZ-06-1-2	-103.06035	33.36531
	VZ-06-1-3	-103.06073	33.36522
	VZ-06-1-4	-103.06059	33.36489
7	VZ-07-1-1	-103.05957	33.36535
	VZ-07-1-2	-103.05959	33.36512
	VZ-07-1-3	-103.05983	33.36500
	VZ-07-1-4	-103.05990	33.36520

Legend

- Proposed Vadose Zone Sample*
- Landfarm Cell

Note(s):
Coordinates are in North American Datum 1983.

*Each vadose zone sample will consist of a discrete sample collected at a depth of 3-4 feet below the cell's original ground surface.

Image Source: Google Earth Pro, 2018.

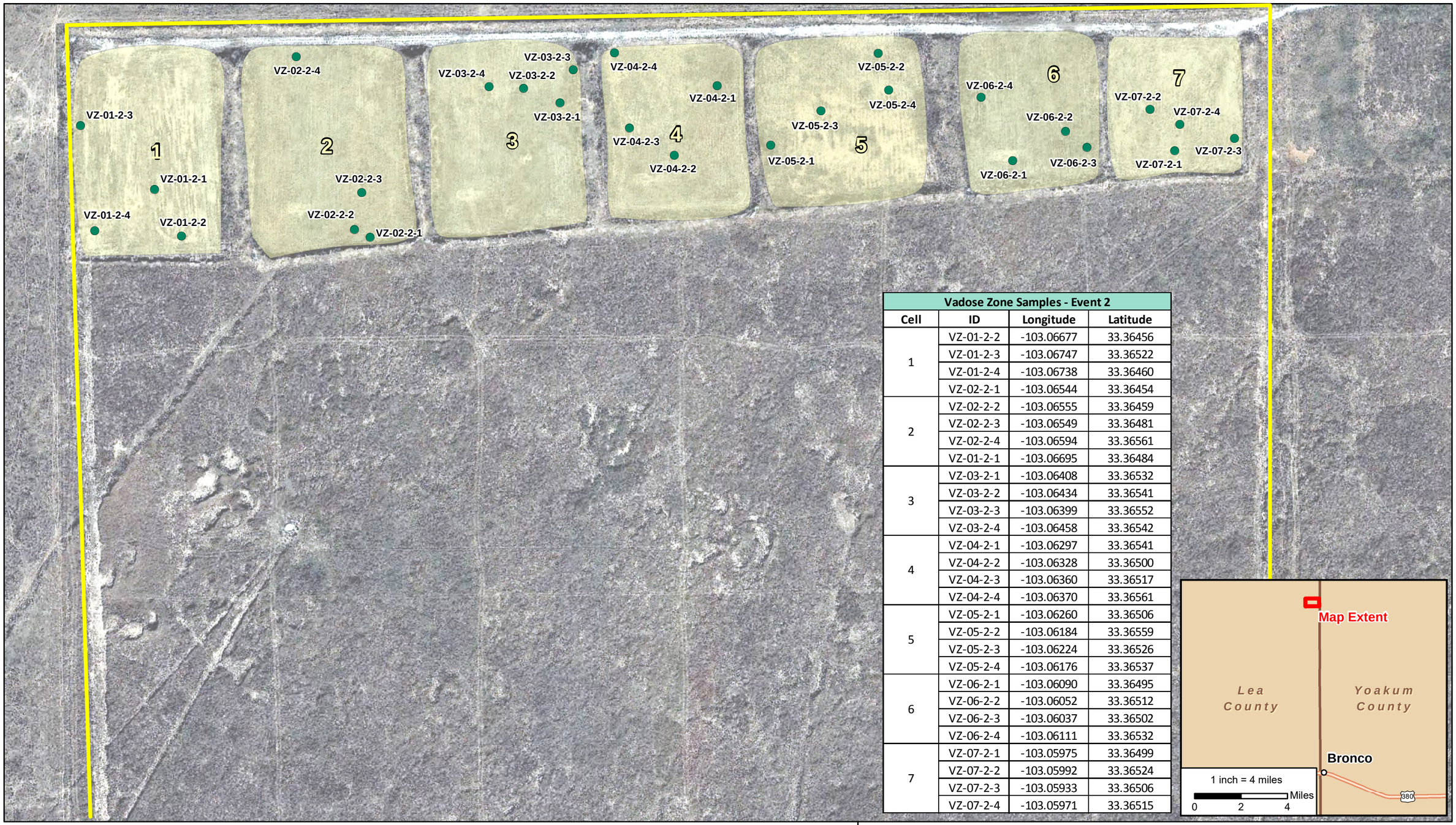
0 200 Feet

1 inch = 200 Feet

N

Figure 5
Proposed Vadose Zone Sample Locations - Event 1
Goo Yea Landfarm, Inc.
Lea County, New Mexico

P:\gis\Projects\Goo Yea Inc\MXD\2019 Figures v2\Fig5_GooYea_Vadose_1.mxd 6/28/2019 EA rmullen



Vadose Zone Samples - Event 2			
Cell	ID	Longitude	Latitude
1	VZ-01-2-2	-103.06677	33.36456
	VZ-01-2-3	-103.06747	33.36522
	VZ-01-2-4	-103.06738	33.36460
	VZ-02-2-1	-103.06544	33.36454
2	VZ-02-2-2	-103.06555	33.36459
	VZ-02-2-3	-103.06549	33.36481
	VZ-02-2-4	-103.06594	33.36561
	VZ-01-2-1	-103.06695	33.36484
3	VZ-03-2-1	-103.06408	33.36532
	VZ-03-2-2	-103.06434	33.36541
	VZ-03-2-3	-103.06399	33.36552
	VZ-03-2-4	-103.06458	33.36542
4	VZ-04-2-1	-103.06297	33.36541
	VZ-04-2-2	-103.06328	33.36500
	VZ-04-2-3	-103.06360	33.36517
	VZ-04-2-4	-103.06370	33.36561
5	VZ-05-2-1	-103.06260	33.36506
	VZ-05-2-2	-103.06184	33.36559
	VZ-05-2-3	-103.06224	33.36526
	VZ-05-2-4	-103.06176	33.36537
6	VZ-06-2-1	-103.06090	33.36495
	VZ-06-2-2	-103.06052	33.36512
	VZ-06-2-3	-103.06037	33.36502
	VZ-06-2-4	-103.06111	33.36532
7	VZ-07-2-1	-103.05975	33.36499
	VZ-07-2-2	-103.05992	33.36524
	VZ-07-2-3	-103.05933	33.36506
	VZ-07-2-4	-103.05971	33.36515

Legend

- Proposed Vadose Zone Sample*
- Landfarm Cell

Note(s):
Coordinates are in North American Datum 1983.

*Each vadose zone sample will consist of a discrete sample collected at a depth of 3-4 feet below the cell's original ground surface.

Image Source: Google Earth Pro, 2018.

0 200 Feet

1 inch = 200 Feet

N

Figure 6
Proposed Vadose Zone Sample Locations - Event 2
Goo Yea Landfarm, Inc.
Lea County, New Mexico

P:\gis\Projects\Goo Yea Inc\MXD\2019 Figures v2\Fig6_GooYea_Vadose_2.mxd 6/28/2019 EA rmullen

FIGURE 7
SCHEDULE FOR CLOSURE PLAN IMPLEMENTATION
GOO YEA LANDFARM NORTH (NM-01-0015), LEA COUNTY, NEW MEXICO

	Year 1													Year 2												Year 3												Year 4											
Activity / Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	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	41	42	43	44	45	46	47	48
Closure Plan Approved																																																
Background Chloride Sampling																																																
TZ Monitoring																																																
TZ Closure Request and Report																																															
TZ Clean Closure Granted by OCD																																															
Commence Post Closure Activities																																															
Grade Berms and Seed																																															
Vadose Zone Monitoring																																															
Baseline Vegetation Monitoring[1]																																																
Post-Closure Vegetation Monitoring[1]																																															
Semi-Annual Closure Reporting																																															
Semi-Annual Post-Closure Reporting																																																
Final Post-Closure Reporting																																																
Final Facility Closure Request																																																
Final Post-Closure Approved																																																
Final Bond Release																																																	

Notes:
TZ = Treatment Zone
1 Plant species and numeration

ATTACHMENT 1

MINOR MODIFICATION REQUEST FORM C-137-A

Goo-Yea Landfarm, Inc.

4601 Hondo Pass, Suite K, El Paso, Texas 79904
Phone 915-886-4335 ● Fax 915-886-4358

June 27, 2019

Mr. Jim Griswold
Oil Conservation Division
1220 South St. Francis Drive, #3
Santa Fe, New Mexico 87505

Re: Minor Modification Requests, Goo-Yea Landfarm, Inc. Bronco Facility (NM-01-0015)

Dear Mr. Griswold,

Goo-Yea Landfarm, Inc. is requesting minor modifications to facilitate closure of its Bronco Facility, Permit NM-01-0015. The requested modifications provide for:

- Vadose zone monitoring to be conducted in accordance with 19.15.36.15.E rather than permit provisions;
- The use of New Mexico Environment Department Risk Assessment Guidelines for Site Investigations and Remediation to provide Soil Screen Levels (SSL) for comparison of 20.2.6.3103 constituents detected in environmental samples to determine protectiveness and closure end points unless there are promulgated standards in 19.15.36.15 NMAC;
- By use of SSL, background soil samples will only be collected for chloride to facilitate release determination for vadose zone monitoring;
- Several classes of toxic pollutants, now part of 20.6.2.3103 A and B by reference, are excluded from sampling since they are not oil-filed related contaminates;
- Goo-Yea requests the access road along the north property line of the landfarm be left to provide access to the property.

Attached is Oil Conservation Division Form C-137A to request these minor modifications. Please contact me at 915-490-0979.

Sincerely,

Steve Dyer, President

Attachment: Form C-137A

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-137A
June 30, 2016

Submit 1 Copy to Santa Fe Office

APPLICATION FOR MINOR MODIFICATION TO SURFACE WASTE MANAGEMENT FACILITY

1. Operator: Goo Yea Landfarm, Inc.

Address: 4601 Hondo Pass Road, Suite K, El Paso, TX 79904

Contact Person: Steve Dyer Phone: 915-490-0979

2. Location: /4 SE /4 Section 14 Township 11 South Range 38 East

3. Provide permit number NM-01-0015

4. Attach a description of the proposed minor modification(s) to the surface waste management facility. ***Item 6 below request minor modification to operate and close in accordance with 19.15.36.15 and 18 NMAC.***

5. If the Minor Modification involves changes to a treatment, remediation, or disposal method, 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.

6. If the Minor Modification will affect the closure and post-closure plan, attach an updated closure and post closure plan, including a responsible third party contractor's cost estimate, sufficient to close the surface waste management facility in a manner that will protect fresh water, public health, and the environment (the closure and post closure plan shall comply with the requirements contained in 19.15.36.18 NMAC).

7. If the Minor Modification will affect the contingency plan, attach an updated 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).

8. If the Minor Modification will affect the control of run-on or run-off water at the site, attach an updated 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.

9. If the Minor Modification will affect the best management practice plan, attach a best management practice plan to ensure protection of fresh water, public health, and the environment.

10. The division may require additional information to demonstrate that the surface waste management facility's operation will not adversely impact fresh water, public health, or the environment and that the surface waste management facility will comply with division rules and orders.

11. 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: Steve Dyer Title: President

Signature: Date: 27 June 2019

E-mail Address: rhinoabq@hotmail.com

Facility:	Goo Yea Landfarm, Inc. North Landfarm, Lea County, New Mexico
Permit Number:	NM-01-0015
Location:	SE/4 of Section 14, Township 11 South, Range 38 East, NMPM
Purpose:	Modify Closure Requirements as Requested Herein
Date:	June 27, 2019

This request for minor modification is to operate and close in accordance with 19.15.36 New Mexico Administrative Code (NMAC) as modified herein. The goal of the modifications is to provide an efficient, protective path to closure.

Goo Yea Landfarm, Inc. requests the following minor modifications to NM-01-0015

- Vadose zone sampling will be performed in accordance with 19.15.36.15.E. NMAC in lieu of NM-01-0015 permit requirements.

- Except for chloride, background sampling will not be conducted as specified in 19.15.36.15.B. NMAC requirements. Benzene, toluene, ethyl benzene, and xylenes (BTEX), and total petroleum hydrocarbons (TPH), will be considered anthropogenic if detected and will not be considered background.

- For other 20.6.2.3103 NMAC constituents required for vadose zone sampling, treatment zone sampling, and site cleanup soil testing 19.15.36.18.C.4.f. NMAC, analytical results from required analyses will be compared to applicable risk pathway soil screening levels (SSL) published in New Mexico Environment Department Risk Assessment Guidelines for Site Investigation and Remediation (Risk Assessment Guidelines), March 2019 or current version at time of comparison. Within the Risk Assessment Guidelines, the Soil Screening Guidance (SSG) incorporates readily obtainable site data and utilizes methods from various United States Environmental Protection Agency (US EPA) risk assessment guidance and derives site-specific screening levels for selected contaminants and exposure pathways. In accordance with Section 2.8 of the SSG, a Site Assessment will be prepared consisting of a conceptual site model, establishing exposure intervals, identifying contaminants of concern, and exposure point concentrations. Since Goo Yea Landfarm North is located in agricultural/ranching land use, only Industrial/Occupational exposure scenarios will be evaluated since residential land use is not expected. Accordingly, Goo Yea Landfarm, Inc. will compare analytical results for metals and other 20.6.2.3103 NMAC constituents if appropriate to SSLs in Table A-1 for the following exposure pathways:

    - Industrial/Occupational soil exposure non-cancer and cancer;

    - Construction worker soil exposure non-cancer and cancer;

    - Soil leaching to groundwater (Target Soil Leaching Concentration) will be evaluated at dilution attenuation factor DAF-20 as recommended by the guidelines; and

  - Finally, adjusting the SSL to site specific conditions (i.e., depth to groundwater, soil characteristics, infiltration, and groundwater seepage velocity) may be performed in accordance with SSG if warranted.

- Toxic pollutants listed in 20.6.2.7.T.2 NMAC are incorporated into 20.6.2.3103.A.2.NMAC standards by reference, and Goo Yea Landfarm, Inc. requests a modification to 19.15.36.15.B. NMAC for Subsections A and B of 20.6.2.3103 NMAC to exclude the following analytes not considered associated with oil field wastes:

  - Bis (chloromethyl) ether (20.6.2.T.2(f)(iii) NMAC)

  - Nitroaromatics and high explosives (20.6.2.T.2(p) NMAC)

  - Nitrosamines (20.6.2.T.2(q) NMAC)

  - Perchlorate (20.6.2.T.2(r) NMAC)

  - Perfluorinated compounds (20.6.2.T.2(s) NMAC)

  - Endosulfan (20.6.2.T.2(t)(vi) NMAC)

  - Prometon (20.6.2.T.2(t)(xi) NMAC)

  - Sulfolane (20.6.2.T.2(y) NMAC)

- The SSG SSL be accepted as applicable thresholds and endpoints for closure and post-closure-care where promulgated standards are not applicable for the purpose of establishing financial assurance and bond costs.

- Analysis of TPH by EPA 8015M full range for GRO, DRO and Motor Oil Range Organics (MRO) hydrocarbons is requested, replacing EPA 418.1.

- It is requested that for Treatment Zone Closure, analytical results for 20.6.2.3103 A and B NMAC metals be compared directly to human-health-based standards provided in SSG which provides Soil Screening Levels (SSLs) protective of groundwater and human health.

- For Vadose Zone monitoring, it is requested that requirement for establishing background levels for TPH and BTEX be waived and concedes that any detections of TPH or BTEX at 3 to 4 feet below the treatment zone are anthropogenic and related to landfarm operations. Background chloride concentration is required and will be established in accordance with 19.15.36.15.B.

- In accordance with 19.15.36.18.C.4.f. NMAC, buildings, fences, roads and equipment have to be removed, and the site cleaned up. Fences are owned by the adjacent ranch owner, and are not owned by Goo Yea Landfarm, Inc. One road runs along the north side of the landfarm, just inside the north fence line, and it is requested it remain for property access.

ATTACHMENT 2

AFFIDAVIT

AFFIDAVIT OF STEVE DYER, PRESIDENT, GOO YEA LANDFARM, INC.

State of New Mexico

County of Bernalillo

I, Steve Dyer, hereby do hereby solemnly affirm and declare that Goo Yea Landfarm, Inc. North Landfarm (NM-01-0015) has never accepted any non-hazardous oil-field liquid and semi-solid waste as requested in permit modification approved by Oil Conservation Division (OCD) on June 14, 2004. This modification provided for construction and installation of a stabilization basin to accept such wastes. The stabilization basin was never constructed and no liquid and semi-solid wastes were ever accepted at the facility.

I declare to the best of my knowledge the statement provided herein is true.

Executed this day _____ day, the month of _____, 2019.

Signature: _____

By: Steve Dyer, President and Owner, Goo Yea Landfarm, Inc.

NOTARY ACKNOWLEDGEMENT

State of New Mexico County of Bernalillo

Subscribed and Sworn to Before Me, on the _____ day of _____, 2019

_____

NOTARY PUBLIC

My commission expires: _____

ATTACHMENT 3

SEED MIX AND TACKIFIER SPECIFICATIONS

Santa Fe Trail Native Grass Blend

$400.00

Size

25lb

Quantity

1

ADD TO CART

Use Santa Fe Trail for reclamation, dryland pasture, or re-establishment of native landscape. Plant this blend in rolling to low mountain regions. It grows well from Clovis to Denver, also Santa Fe and Flagstaff areas, and works in most western parts of New Mexico. It adapts to a wide variety of soil types.

PRODUCT INFO

Blue Grama, Indian Ricegrass, Western Wheatgrass, Sideoats Grama, Galleta, Buffalograss, Alkali Sacaton, Sheep Fescue and Little Bluestem.

Profile®
Solutions for your Environment™

Tornado Tack™ ST-1000

All-In-One, High-Loading Straw Tackifier

NEW

The Strongest Straw Tackifier Available Plus, Covers Twice The Area!

Introducing the first product in the Tornado Tack™ line from Profile.® Tornado Tack ST-1000 is an all-in-one, hydraulically applied tacking solution for straw, giving you twice the coverage of a traditional blended mulch and tackifier while providing the strongest, environmentally safe bond. With the high-loading formulation and 500 pounds-per-acre application rate, it saves time through fewer loads per job and frees you up to earn more money each day. Plus, the product's performance on the ground gives you confidence that you will get the job done right the first time.

- Prevents straw from blowing or washing away
- Minimizes straw from migrating to sensitive areas
- Environmentally safe alternative to asphalt emulsion binders
- Stabilizes the growing environment
- Lengthens the functional longevity (staying power) of the straw

Up to 40% Higher Loading and Double the Coverage

- Save water and time – can be loaded at 65-70 pounds per 100 gallons (29-31 kg/379 L)
- Double the coverage – up to 4 acres (1.6 ha) of coverage from a 3,000-gallon (11,356 L) tank
- Safe for the environment – biodegradable ingredients
- Greater fiber-to-fiber and fiber-to-soil bond strength – designed with patented interlocking, biodegradable fibers and porous ceramic reinforcement particles
- Safer and easier loading and storage with a convenient, all-in-one package – no need to lug multiple products to the job site for repeated field mixing
- Easy to mix and spray – can be used in a wide variety of hydroseeding equipment

Profile® Tornado Tack™ ST-1000 Technical Data:

COMPOSITION

Wood Cellulose Fiber	95%
Organic Biopolymers	3%
Crimped, Man-Made Biodegradable Interlocking Fibers	1%
Porous Ceramic Particles	1%

INSTALLATION

Straw Tacking:

Mix Tornado Tack™ ST-1000 at a rate of 65-70 pounds per 100 gallons (29-31 kg/379 L) of water in hydroseeding tank. Confirm loading rates with equipment manufacturer.

Hay and Straw Mulch Binding: 500 lb/ac (560 kg/ha)

Strictly comply with equipment manufacturer's installation instructions and recommendations.
Use approved hydro-spraying machines with fan-type nozzle (50-degree tip is preferred for maximum fiber distribution and coverage).

PACKAGING

50-lb bags (22.7 kg)
40 bags per pallet

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PS³ is a free, comprehensive 24/7 online resource you can use to design a project and select the right products that address both the physical and agronomic needs of your site. It will help you develop holistic, sustainable solutions for cost-effective erosion control, vegetation establishment and subsequent reductions in sediment and other pollutants from leaving disturbed sites. Because good plans start with the soil, PS³ offers free soil testing to ensure this critical step is considered. To access the site, design your project and take advantage of a free soil analysis, visit **www.profileps3.com**.

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