ATTACHMENT K - SITE OPERATION PLAN

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1.0 INTRODUCTION

This Site Operating Plan (SOP) has been prepared for the proposed facility consistent with NMAC 19.15.36 and includes provisions for site management and site operating personnel to meet the general and site-specific requirements consistent with NMAC 19.15.36. The SOP will remain onsite throughout the active life of the facility and throughout the post-closure care maintenance period.

2.0 PERSONNEL, TRAINING, AND SITE EQUIPMENT

2.1 Personnel

The proposed site will maintain qualified personnel with experience in waste disposal operations and earthmoving construction projects. Personnel will undergo training in H_2S and the contingency plan before beginning work. The following list is the expected site personnel and rank onsite. Table K.1 shows the number of employees needed for each site.

1. General Manager - Responsible for assuring adequate personnel and equipment are available to guarantee facility operations in accordance with the SOP. The landfill general manager is responsible for general facility management and designated as the contact person for regulatory compliance. The manager will have at least three (3) years of supervisory experience in landfill operations. The landfill general manager will obtain and maintain all applicable operator license.
2. Operations Manager - Under direction of landfill general manager and responsible for daily operations and emergency coordination. The landfill operations manager is responsible for coordinating with equipment operators regarding a waste disposal operation including active workface, excavation operations, and placement of intermediate cover. The landfill operations manager will obtain and maintain all applicable operator licenses.
3. Equipment Supervisor - Responsible for safe operation of site and operating facility equipment in a manner that achieves compliance with the SOP. The equipment supervisor must be on alert for any potentially dangerous conditions and careless or improper actions on the part of landfill patrons and visitors while on the premises. This employee will report any such observations directly to the landfill operations manager.
4. Laborer - Directs vehicles to the proper unloading area at the working face, observes unloading, looks for prohibited wastes, and directs vehicles as they maneuver near the active area. The landfill operations manager may assign additional responsibilities to employee(s) as necessary.
5. Other Supplemental Personnel - Onsite as necessary for duties such as cell construction, operation and maintenance of the leachate management system, groundwater monitoring, landfill gas monitoring, site maintenance, and litter cleanup.

Table K.1 – NECESSARY SITE PERSONNEL

Position	Number of Employees
General Manager	1
Operations Manager	1-2
Equipment Supervisor	4-6
Laborer	2-4

2.2 Training and Experience

All personnel will be familiar with the SOP and other permit documents. Annual training events will be conducted for facility personnel, which must include permit conditions,

emergencies, proper sampling methods, general operations, and identification of exempt and non-exempt waste and hazardous waste.

2.3 Equipment

Equipment requirements will vary in accordance with the method and scope of activities onsite at a given time. Additional or different units of equipment may be provided as necessary to enhance operational efficiency. Table K.2 lists the types and sizes of equipment provided at the facility.

Table K.2 - LANDFILL FACILITY EQUIPMENT LIST

Equipment Type	Function
Rubber-Tire Loader	Used for earthmoving activities and landfill unit construction, delivery and application of cover material, excavation of soil, and movement of waste.
Compactor	Used for the compaction and movement of waste, application of daily cover, and other workface related activities.
Dozer	Used to move waste and soil short distances, rework sideslope erosion rills, limited waste compaction, and daily cover operations.
Scrapers	Used to excavate future landfill units and daily cover material, transport material from longer distances, apply daily or intermediate cover
Water Truck	Used for dust control and firefighting support.
Motor Grader	Assists in roadway construction, maintenance, grading, and drainage improvements.

In addition to the list in Table K.2, miscellaneous pickups, vans, and other light utility vehicles as well as various pumps, instruments, and safety and training equipment will be onsite as necessary for facility operations. As operations evolve or because of significant volume increases of waste stream, an increase in the number of equipment or additional unspecified equipment may be required to meet the needs of the facility operations.

3.0 GENERAL FACILITY INFORMATION AND OPERATIONAL REQUIREMENTS

3.1 Access Control

Public access to the landfill is controlled by a perimeter fence located along the facility boundary. Access to the landfill is limited to the entrance road from Andrews Highway. All access must enter the site through one (1) of the scalehouse areas.

3.2 Site Security

Site security measures are designed to prevent unauthorized persons from entering the site, protect the facility and equipment from possible damage caused by trespassers, and prevent disruption of facility operations caused by unauthorized site entry. The perimeter fence, consisting of barbed wire, chain link, woven wire, pipe fencing or other suitable materials located along the facility boundary and entrance gate, will control unauthorized entry to the site. A gate constructed of suitable fencing materials will be located on the entrance road, remaining locked when the landfill is not accepting waste.

Site personnel will monitor the entrance during waste acceptance hours but outside of operating hours, the gate will be locked. Entry to the active portion of the site will be restricted to designated personnel, approved waste haulers, and properly identified persons whose entry is authorized by a site representative. Visitors may be allowed on the active area only when accompanied by a site representative.

3.3 Site Signs and Traffic

Once authorized vehicles are onsite, signage will be placed to efficiently direct the vehicles. Waste-hauling vehicles will be directed to the active fill area by the use of these signs. Private, commercial, or public solid waste vehicles are not allowed to access any other areas of the landfill. Roads not used for access to disposal areas will be blocked or marked for no entry. Once vehicles have unloaded the waste, they must depart the site. Site personnel will provide traffic directions if necessary to facilitate safe movement of vehicles.

3.4 Noise Control

Sounding land around the C.K. Facility is used for gas exploration, cattle grazing, industrial, or landfill activities. Noise nuisance will not be a concern for nearby residences or businesses. Due to high volume of gas, oil, industrial, and landfill activities, the proposed site will not greatly increase noise nuisance in the area.

3.5 Odor Control

Potential odor sources associated with the C.K. Facility include the wastes being delivered to the landfill, the open working face, ponded water, and landfill gas. Methods used to control odors include waste management procedures, the placement of cover materials, control of ponded water, leachate, and landfill gas control. H_2S gas is known for a foul odor which can be dangerous at high concentration levels. Loads with high levels of H_2S gas will be treated with calcium hypochlorite to lower H_2S concentrations. The surrounding land is used for gas,

oil, industrial, and landfill activities so the proposed site will not greatly increase an odor nuisance in the area. H_2S management plan is included in Appendix A.

3.6 Dust Control

Dust control will be maintained using at least one (1) water wagon. This truck will be used as needed to prevent excess dust release from C.K. Facility. A speed limit throughout C.K. Facility will be posted as 15-mph.

3.7 Minor Spills/Releases

Spills at the C.K. Facility will most commonly involve fuel or other vehicular fluids. C.K. Facility will be equipped with necessary equipment to control and clean fuel, E&P wastes, and other fluid spills. All spills will be controlled, cleaned, and documented immediately.

4.0 C.K. FACILITY OPERATIONS

4.1 Landfill Phasing Plan

C.K. Facility will develop the landfill units in accordance with Attachment B – Engineered Design Plans. The liquid processing area phasing of the C.K. Facility will consist of four (4) phases: Initial Landfill-Produced Water Processing Operation, Jet Out Pit Operation, Expanded Produced Water Processing Operations, and Ultimate Produced Water Processing Facility.

A. Phase I - Initial Landfill-Produced Water Processing Operation

- Initial landfill cell (23.6-acres).
- Four (4) produced water load-out points.
- Tank farm berm (complete).
- Boiler (75HP) running a heat transfer fluid tank farm.
- Four (4) produced water receiving tanks 1,000-barrel capacities each.
- Sixteen (16) settling tanks with 1,000-barrel capacities each.
- One (1) crude oil recovery tank with 1,000-barrel capacity.
- One (1) oil sale tank with 1,000-barrel capacity.
- The mechanical oil/water separation unit.
- Four (4) ponds capable of evaporating 3,000-barrels of liquid per day.

Six (6) barrels per day is the anticipated oil recovery output from Phase I. The oil will be pumped to the heated crude oil recovery tank for further processing and separated before pumped to the oil sales tank.

B. Phase 2 - Jet Out Pit Operation

- Six (6) jet out pits for handling basic sediment and water, tank bottoms, oily drilling muds, and tank wash outs.
- One (1) additional crude oil recovery tank with a 1,000-barrel capacity.
- Installation of the 5-acre stabilization and solidification area.

The oil recovered from the jet out pit will be pumped to a heated crude oil recovery tank installed in the tank farm for processing. Oil recovered from the produced water tanks will also be pumped to this tank. Water recovered from the pit will be pumped to the produced water tanks. Sediments from the pit will be bucket-loaded out of the pit and transferred to the stabilization and solidification area for processing prior to being taken to the landfill.

C. Phase 3 - Expanded Produced Water Processing Operation

- Four (4) produced water load-out points.
- Four (4) additional produced water receiving tanks with 1,000-barrel capacities each.
- Sixteen (16) additional settling tanks with 1,000-barrel capacities each.
- Three (3) additional crude oil recovery tanks with 1,000-barrel capacities each.

- Two (2) additional oil sales tanks with 1,000-barrel capacities each.
- Two (2) additional mechanical/oil water separation units.
- Four (4) additional ponds capable of evaporating 5,000-barrels of liquid per day.

Six (6) barrels per day is the anticipated oil recovery from the expanded produced water processing operation process. This will be pumped to the crude oil recovery tanks for further processing.

D. Phase 4 - Ultimate Produced Water Processing Facility

- Four (4) additional produced water receiving tanks with 1,000-barrel capacities each.
- Sixteen (16) additional settling tanks with 1,000-barrel capacities each.
- One (1) additional oil sales tank with 1,000-barrel capacity.
- One (1) additional mechanical/oil water separation unit.
- Four (4) additional ponds capable of evaporating 4,000-barrels of fluid per day.
- The additional oil recovered from the ultimate produced water processing facility will be pumped to the crude oil recovery tank for further processing.

The totals are eight (8) produced water load out points, sixteen (16) produced water receiving tanks, one (1) boiler, forty-eight (48) settling tanks, five (5) crude oil recovery tanks, four (4) oil sales tanks, four (4) mechanical oil/water separation units, twelve (12) evaporation ponds, six (6) jet out pits and one (1) solidification and stabilization area. Water treatment and reuse facility and saltwater disposal well may be added as necessary during any phase. The addition of these services will be dependent on market conditions and the actual amount of liquid waste being disposed.

The phase development may change based on the needs of the facility. The site development sequence is also subject to change and may be updated to reflect market conditions.

4.2 Waste Characteristics

Oil and gas exploration and production operation exempt oilfield waste will be accepted at the C.K. Facility. Neither hazardous nor non-exempt oilfield waste will not be accepted for processing or disposal. OCD Form C138 - Request for Approval to Accept Solid Waste will be required before any waste is accepted by the C.K. Facility. Wastes failing the paint filter test will be accepted in the liquids processing area on the site. The following are anticipated types of accepted waste:

- Contaminated soil.
- Drilling mud.
- Stabilized tank bottoms.
- Other oilfield activity waste.

4.3 Waste Acceptance

C.K. Facility requires a certification on form C138, signed by the generator or authorized agent, that represents and warrants the oilfield wastes are generated from oil and gas

exploration and production operations, are exempt waste and not mixed with non-exempt waste. The operator shall have the option to accept such certifications on a monthly, weekly or per-load basis. The operator shall maintain and make the certificates available for the division inspection. C.K. Facility requires the oilfield waste document, form C138, signed by the generator or authorized agent. This form shall be accompanied by acceptable documentation to determine the oilfield waste is non-hazardous. C.K. Facility requirements may accept non-hazardous, non-oilfield wastes in an emergency if ordered by the Department of Public Safety (DPS). C.K. Facility requires generators to complete form C138 describing the waste, accompanied by the DPS order. C.K. Facility will maintain records reflecting the generator, the location of origin, the location of disposal within the commercial facility, the volume and type of oilfield waste, the date of disposal, and the hauling company for each load or category of oilfield waste accepted at the commercial facility. C.K. Facility will maintain records for a period of not less than five (5) years after the commercial facility closure, subject to division inspection. Disposal at C.K. Facility shall occur only when an attendant is on duty unless loads can be monitored or otherwise isolated for inspection before disposal. C.K. Facility will be secured to prevent unauthorized disposal.

4.4 Prohibited Waste

Only exempt oilfield waste as stated in NMAC 19.15.36.13.F will be accepted at the C.K. Facility. The following wastes are prohibited at the site:

- Regulated non-exempt hazardous waste.
- Non-exempt Naturally Occurring Radioactive Materials (NORM) waste.

Any haulers or generators of the previously mentioned prohibited wastes will be referred to a U.S. EPA RCRA permitted facility.

4.5 Waste Capacity and Site Life

C.K. Facility has an approximate gross airspace of 24,585,056-cubic yards. A contingency of 15% was applied to the total airspace to account for daily and intermediate cover loss, variation in waste density, and other operational losses that may occur during the life of the facility. Approximately 20,897,298-cubic yards of waste capacity remains after the 15% contingency loss. An estimate of 500-cubic yards/day was used for an initial projected incoming waste volume. Table K.3 illustrates the estimated site life per 365-days/year:

Table K.3 – ESTIMATED SITE LIFE

500 cubic yards per day	115 years
1,000 cubic yards per day	57 years
1,500 cubic yards per day	38 years

4.6 Gas Safety

Typical landfill gas expected at municipal solid waste landfills is not normally produced in oilfield waste. C.K. Facility will not have dedicated gas-monitoring wells. Vadose zone monitoring will be conducted in accordance with Attachment H – Vadose Monitoring Plan. Methane and H_2S are both known to produce particular smells. If these are suspected to be in the proposed vadose zone monitoring wells, they will be tested for gas and appropriate measures will be taken.

4.7 Leachate Monitoring

Appendix B will describe the anticipated amount of leachate generated using weather data from Roswell, New Mexico. This was the closest available data for the site and is in a slightly wetter climate which will show a worse case scenario than to be expected per year.

Leachate piping system is at least 6-inches in diameter and sloped at a minimum of 2% to promote positive drainage to each unit sumps. Each unit will be constructed with perforated leachate pipes, textile enclosing the pipe to minimize fines intruding in the pipe. Leak detection layer will be constructed between two (2) HDPE liners monitored in the monthly inspection.

In accordance with NMAC 19.15.36.14.F, liners and leachate collection systems will be designed to ensure performance of the system does not allow for a leachate head accumulation to exceed 12-inches. Attachment E - HELP Model, has demonstrated the head on the proposed liner does not exceed 12-inches. Leachate levels on the floor will be pumped routinely and maintained so the liner head stays below the regulatory threshold. Leachate generation is projected to ultimately approach zero. Due to waste passing the paint filter test before disposal at the solid waste landfill, the leachate will be generated by rainfall. With the dry climate and high evaporation rates of the region, the leachate generation will be zero after the first lift of waste is placed on the liner system. The evaporation rate in the site region and field capacity of the waste offsets the volume of rainfall expected for the site. Leachate will continue to be monitored through the life and post-closure care of the facility to ensure the liner head does not exceed 12-inches.

Leachate sumps will be pumped with portable submersible pumps, vacuum trucks, or other approved equivalent device. Remote level sensors can be equipped to the dedicated submersible pumps for constant monitoring of leachate levels. At a minimum, leachate sumps will be monitored each month and extracted quarterly as protective measures to keep head less than 12-inches on liner.

Leachate will be disposed of in the produced water receiving tanks and processed through the evaporative pond process. If excess leachate is encountered and cannot be disposed of, C.K. Facility will seek alternative OCD-approved facilities for disposal. After closure of the C.K. Facility and following approval by the OCD, the leachate will be transported to the most effective treatment or disposal technology.

Leak detection monitoring of the units and evaporation ponds will be inspected monthly. Any liquids in the leak detection layer will be removed and treated or disposed as leachate. Based on "Leakage through Liners Constructed with Geomembranes, Part 1 – Geomembrane Liners" by J. P. Giroud and R. Bonaparte, the projected leakage rate for HDPE liner at the C.K. Facility will be roughly 10- to 140-gal/acre/day. The average of the projected leakage (75-gal/acre/day) will be anticipated for the site. If excess liquid is found in leak detectors, the OCD will be notified within 24-hours and the facility will start corrective measures including but not limited to:

- Increase liquid level monitoring and frequency of sumps and leak detection layer.
- Testing liquid collected in sump and leak detection layer to isolate a problem.

If excess liquids are found in the evaporative pond leak detection layer, the pond will be drained and site personnel will take action to find the source of the leak. Liquid testing of the liquids in the leak detection layer will be submitted to the OCD. If the source of the leak is found, repairs will be made by qualified liner installers. After repairs are made, monitoring of the leak detection layer will be completed bi-monthly until verified the leak is properly repaired.

4.8 Operating Hours

The C.K. Facility will accept waste 24-hours/day for 7-days/week. Signage will specify operating hours for the site. The site will operate under all weather conditions and the active working face may be relocated during inclement weather to allow for easier access for waste haulers. C.K. Facility may reduce operating hours based on reduction of waste stream. OCD will be notified if operating hours change.

5.0 LIQUIDS PROCESSING

The estimated acceptance rate expected at the C.K. Facility is 9,000-barrels/day. As market conditions and technology changes, the site anticipates the liquid waste acceptance rate to vary. C.K. Facility has been designed to process roughly 12,000-barrels/day. Liquids processing rate will rely on evaporation rates for the region. If evaporation ponds are near capacity, the C.K. Facility will stop collecting liquid waste until evaporation of produced water is reduced for extra capacity. The C.K. Facility shall also treat water for reuse in frack operations.

Produced water will be received in the produced water load-out stations. The produced water will then be transferred to the heated tanks to separate oil, water, and sediments. The separated oil will be transferred to the oil recovery tanks prior to storage in oil sales tanks. Sediments will be transferred to the solidification area until the paint filter test is passed. Once the paint filter test is passed, it can be placed in the solid waste disposal workface area. Water from the site will either be transferred to the evaporation ponds or to the water treatment and reuse area.

6.0 WATER TREATMENT AND REUSE

An alternative to the evaporation of produced water is treatment and reuse of the water. After solids and oil separation activities, water will be diverted to a treatment plant. The end goal of treatment is water that can be sold for use in the oil and gas industry. The plant is expected to receive a peak flow of 12,000-barrels of water a day. Following treatment, 7,140-barrels of water are expected to be available for sale. The following are key constituents of concern for the water treatment facility: Volatiles remaining after oil-water separation, solids, iron and manganese, biological including algae, total dissolved solid, and chlorides. These constituents are known to adversely affect oil and gas operations and the minimization is paramount to the ability to sell the produced water. The proposed plant would utilize a 3-stage treatment process including a stripping tower, greensand filters, and reverse osmosis. As incoming and produced water quality information becomes more readily available, treatment units may adjust to fit the particular application requirements. Treated water will be stored in tanks and sold via a water loadout station.

6.1 Stripping Tower

Volatiles and dissolved gasses can be problematic in other treatment activities as well as oil and gas use. The treatment goal of the stripping tower is to minimize these harmful constituents in effluent water. The stripping tower would be 7-feet in diameter and of packed tower design. The water would enter the tower pressurized to be misted through nozzles at the top of the vessel. The water would then be deposited on packing material to allow maximum contact with the ambient air. Treated water would collect at the bottom of the stripper before continuing on to further treatment. Air would be pulled from the bottom of the stripper, through the packed media bed, and out the top of the stripper. At this time, expected air would simply be off-gassed to the ambient atmosphere. Further air treatment could be incorporated as necessary. Periodic cleansing of the stripping tower would be necessary to maintain an efficient level of treatment. Cleansing water would be deposited in the evaporation ponds onsite. After moving through the stripping tower, water would continue on to filtration.

6.2 Greensand Filters

Filtration of the water is an essential pre-treatment step for further treatment and minimization of solids. Water is expected to be free of readily settle-able solid material but fine solids may still persist. Greensand filtration is known to reduce suspended solids and other metal constituents. Iron and manganese can create other treatment issues as well as corrosion in oil and gas use. Greensand filtration is expected to significantly reduce iron and manganese in the water. Four (4) greensand filters with 8-feet diameters, requiring periodic backwashing, are proposed to treat the water. The system will be designed to operate with one (1) filter out of service for backwashing at a time. Backwash flow will be directed to the evaporation ponds for final disposal. After filtration, the water will be sent to the reverse osmosis (RO) units.

6.3 Reverse Osmosis

High chlorides and dissolved solids are expected in the feedwater. These constituents present corrosion and material degradation issues when used in oil and gas work. The control of

these constituents to acceptable levels will be required. RO can significantly reduce dissolved solids by utilizing spiral wound membranes and pressure. Pre-treatment with anti-scalant is required to maintain proper pressure on the membranes. The membranes will be cleaned with a clean, in-place system periodically. Expected recovery on the RO system is 60%. The concentrated water will be deposited in the onsite evaporation ponds. Post-treatment from the RO will be a biocide to reduce any biological growth in post-treatment storage tanks.

BS&W wastes will be separated after discharged in the jet out pit. Solids will settle over time and liquids will be removed and processed. Solids will be transferred to the stabilization and solidification area before ultimately being landfilled.

Drilling mud will be deposited in the stabilization and solidification area and combined with dry soil as needed to accelerate the solidification process. As all other waste in the stabilization and solidification area, the waste must pass the paint filter test before transported to be landfilled.

7.0 INSPECTION AND MAINTENANCE

C.K. Facility staff will conduct inspections of onsite facilities in accordance with Table K.4. If repairs are needed, they will be conducted as soon as is safe to proceed with repairs.

Table K.4 - FACILITY INSPECTIONS

Component	Frequency	Recording Form
Evaporation Spray System Weather Station Plume Height Overspray	Daily	Facility Inspection Form
Landfill Disposal Operations and Location Free Liquids Stormwater Controls Litter, Vectors, Odors Daily Cover	Daily	Facility Inspection Form
Overall Facility Operation Signs Security (fencing/gates) Stormwater Control Systems (run-on/run-off) Access Roads OCD Permit Compliance Construction Activity	Weekly	Facility Inspection Form
Treatment Plant, Tanks, and Sumps Containment Berm Tank Condition Tank Leak Test (annual) Signage Pipe and Valve Condition Sump Condition	Weekly	Facility Inspection Form
Tank Farm and Pump System (Process Area) Containment and Liner Tank Condition Tank Leak Test (annual) Signage Pipe and Valve Condition Sump Condition	Weekly	Facility Inspection Form

Table K.4 - FACILITY INSPECTIONS

Component	Frequency	Recording Form
Pit and Pond Operation Depth of Liquids in Sumps Pond Levees Piping Condition and Status	Weekly	Pond Integrity/Leak Detection Inspection Form
Solid Waste Disposal Landfill Leachate Collection Sump	Monthly	Facility Inspection Form
Pond Containment System Rainfall Wind Speed/Direction Damage Assessment	Quarterly	Pond Integrity/Leak Detection Inspection Form
Landfill and Process Area Vadose Zone Monitoring	Quarterly	Facility Inspection Form

7.1 Evaporative Spray System

Evaporative spray system consists of three (3) mechanical evaporators per evaporation pond. The mechanical evaporators will be inspected daily for plume height and overspray based on the weather station. Facility staff will continuously monitor each evaporator to ensure proper function and prevent overspray from landing outside of the pond area. Evaporators will be adjusted according to current conditions.

7.2 Landfill

Landfill area will be inspected daily by facility staff. Location and size of workface will be inspected by equipment operators and managers of landfill activities to ensure proper size. Staff will inspect for free liquids, storm water, litter, vectors, odors, and daily cover. Any deficiencies will be repaired in a safe and timely manner.

7.3 General Facility Operation

The facility will be inspected weekly including but is not limited to all liquid processing areas, sumps, and landfill. Inspection documentation will be kept in the scalehouse and made available to the OCD upon request.

7.4 Liquid Processing Area

Each week, delivery area, tanks, leak detection, and sumps will be inspected. All piping will be inspected to ensure proper liquid flow. Boiler will be inspected by trained personnel familiar with boiler operation. If issues are found that may endanger workers or the overall system, the liquid processing area shall be shut down until repairs are made. Tanks will be inspected for defects which may present safety hazards or environmental issues. If defects are found, the liquid processing area will be shut down until necessary repairs are made. Leak detection will be inspected weekly to ensure proper functions. If the sump integrity

fails, all sump contents and contaminated soils will be landfilled and necessary repairs made before operations can resume.

7.5 Pond Operations

Sump and leak detection systems will be inspected weekly. Liquids will be removed from the primary liner and leak detection system. As needed, the ponds will be cleaned and repaired to ensure proper functionality. If excessive leakage (ie 1.5-feet of water) is found in the leak detection system, the corresponding pond will be drained and the ODC will be notified within 24-hours. Prior to the pond being operational, the following corrective action shall be taken:

- Locate area(s) of leakage.
- Repair liner.
- Monitor sump liquid level on OCD-approved interval.
- Test liquids.

All areas of the site will be inspected after large rainfall event or at least monthly to address any erosion concerns.

APPENDIX A

H_2S MANAGEMENT PLAN

1.0 INTRODUCTION

Hydrogen Sulfide (H_2S) is a colorless, flammable, and hazardous gas that emits a rotten egg smell. H_2S is heavier than air and can collect in lower and enclosed areas. The following sections describe measures to take at the facility securing safety for customers, visitors, workers, general public, and nearby landowners. Training of the personnel will ensue each year for all new and existing employees or if changes have been made to the plan. New employees shall have H_2S training sessions before they can begin working for the facility.

The facility will have designated local emergency contacts as shown in Table K.A.1. A meeting will be scheduled with the local agencies to discuss notification, emergency response procedures and evacuation plans. The H_2S monitoring program will be implemented during the active life of the facility.

Table K.A.1 - EMERGENCY CONTACTS

Agency/Organization	Emergency Number
1. Fire	
Eunice Fire Department	911 or (575) 394-3258
2. Police	
Eunice County Police Department	911 or (575) 394-2112
Lea County Sheriff Department	911 or (575) 396-3611
New Mexico State Police	911 or (575) 392-5580
3. Medical/Ambulance	
Eunice Fire Department	911 or (575) 394-3258
Lea Regional Medical Center 5419 N. Lovington Highway Hobbs, NM 88240	(575) 492-5000
4. Response Firm	
Phoenix Environmental, LLC. 2113 French Drive Hobbs, NM 88240	(575) 391-9685
5. OCD Emergency Response Contacts	
Oil Conservation Division - District 1 1625 N. French Drive Hobbs, NM 88240	(575) 393-6161 (office) (575) 370-3186 (mobile)
Oil Conservation Division - Main Office 1220 South St. Francis Drive Santa Fe, NM 87505	(505) 476-3440
6. State Emergency Response Contacts	
Environmental Emergency (24 hr) (NMED)	(505) 827-9329
New Mexico Environment Department Solid Waste Bureau, Santa Fe	(505) 827-0197
7. Local Emergency Response Contacts	
Lea County Emergency Management	(575) 391-2983
8. Federal Emergency Response Contacts	
National Emergency Response Center (U.S. Coast Guard)	(800) 424-8800
Region VI Emergency Response Hotline (USEPA)	(214) 665-2200

In accordance with NMAC 19.15.36.8.C.8, the prevention and contingency plan will comply with the provisions of NMAC 9.15.11 that apply to surface waste management facilities.

Table K.A.2 - API RECOMMENDED PRACTICE 55

IMMEDIATE ACTION PLAN
Each contingency plan should contain a condensed Immediate Action Plan followed by designated personnel any time they receive notice of a potentially hazardous hydrogen sulfide or sulfur dioxide discharge. For personnel protection (including the general public) and abatement of the discharge, the Immediate Action Plan should include but not be limited to the following provisions:
a. Alert and account for facility personnel. 1. Move away from hydrogen sulfide or sulfur dioxide source and leave affected area. 2. Equip personnel with proper breathing equipment. 3. Alert other affected personnel. 4. Assist personnel in distress. 5. Proceed to designated emergency assembly area. 6. Account for onsite personnel. **b.** Take immediate measure to control present or potential hydrogen sulfide or sulfur dioxide discharge and eliminate possible ignition sources. Emergency shutdown procedures should be initiated as necessary to correct or control specific situations. When required action cannot be accomplished in time to prevent exposing operating personnel or public to hazardous concentration of hydrogen sulfide or sulfur dioxide, proceed to the following steps as appropriate for the site specific conditions. 1. Alert the public (directly or through appropriate government agencies) subjected to an atmosphere exposure exceeding 30-ppm[21] or 10-ppm[21] of sulfur dioxide. 2. Initiate evacuation operations. 3. Contact the first available designated supervisor on the call list. Notify supervisor of circumstances and whether immediate assistance is needed. The supervisor should notify other supervisors and other appropriate personnel (including public officials) on call list. 4. Make recommendations to public officials regarding blocking unauthorized access to the unsafe area and assist as needed. 5. Make recommendations to public officials regarding evacuating the public and assist. 6. Notify, as required, state and local officials and the National Response Center to comply with release reporting requirements (i.e., 40 *Code* of *Federal Regulations Parts 302* and *355*). 7. Monitor the ambient air in the area of exposure (after following abatement measures) to determine when safe for re-entry.
Emergency Response Planning Guide Level 2 (ERPG-2), refer to Reference 27. ERPG-2 is defined as the maximum airborne concentration below believed that nearly all individuals could be exposed for up to 1-hr without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action.

Note: This sequence should be altered to fit the prevailing situation. Certain actions, especially those dealing with the public, should be coordinated with public officials.

1.1 Emergency Coordinators

In accordance with NMAC 19.15.36.13.N.3, the facility will have a specialist with the responsibility and authority to take responsive measures when an emergency threatens freshwater, public health, safety, or environment.

Table K.A.3 - LIST OF EMERGENCY COORDINATORS

Primary Emergency Coordinator			
Name:	TBD	Work Phone:	(575) TBD
Title:	Facility Manager	Mobile Phone:	(575) TBD
Alternate Emergency Coordinator			
Name:	TBD	Work Phone:	(575) TBD
Title:	Facility Operator	Mobile Phone:	(575) TBD
On-site Emergency Coordinator			
Name:	TBD	Work Phone:	(575) TBD
Title:	Facility Operator	Mobile Phone:	(575) TBD

These emergency contacts will be able to respond 24-hours/day, 7-days/week and the authority required for the implementation of this plan. A facility employee will attempt to contact all emergency contacts until contact is made. The first emergency contact to arrive onsite will assume responsibility for initiating response measures. The higher-ranking emergency contact will assume responsibility if more than one contact responds.

1.2 Monitoring

All oilfield waste loads will be monitored for H_2S upon arriving at the site. OCD Form 138 will be obtained and monitoring results be recorded. The form will be kept in the operating records. Employees will be equipped with monitors in case H_2S gas may be present. These monitors will sound off and light up when H_2S is detected at 10-ppm. If H_2S gas is detected at this concentration, the driver and generator of the waste will be notified and given the option to allow facility employees to treat the onsite load by adding calcium hypochlorite in accordance with Table K.A.4. Calcium hypochlorite will be mixed with the load and continually tested until the H_2S reading is below 1-part/million. After the testing of the load verifies the load is below 1-part/million H_2S, the load will be directed to the correct receiving area. If treatment by facility staff is not allowed, the load will not be accepted and the hauler will leave the facility.

Table K.A.4 - H_2S TREATMENT FOR VEHICLES

H_2S PPM	$Ca(ClO)_2$ (34.5-ounces x number below)
<50	1
50-100	1.5
100-150	2
150-200	2.5
200-250	3
250-300	3.5
300-350	4
350-400	4.5
400-450	5
450-500	5.5
500-550	6
550-600	6.5
600-650	7
650-700	7.5
700-750	8
750-800	8.5
800-850	9
850-900	9.5
900-950	10
950-1000	10.5

1.3 Evaporation Pond Monitoring

H_2S monitors will be placed around evaporative ponds in accordance with Attachment B - Engineered Design Plans. These monitors will continuously monitor H_2S levels and wired to communicate with scalehouse personnel. Wind direction, speed, and H_2S concentrations will be recorded two (2) times a day and recorded on the Daily Air and Water Inspection Form. If monitors detect H_2S above 10-ppm, personnel will take a secondary reading downwind of the berm within one (1) hour if the sample can be taken in a safe manner. As soon as is safe, a dissolved oxygen and dissolved sulfides concentration test will be tested of the pond. H_2S readings will be taken at the property boundary downwind of the evaporation pond. If a second consecutive reading is taken over 10 parts per million, the OCD office in Hobbs shall be notified immediately. Monitoring will ensue hourly for the next 24-hours. Pond level will be lowered to achieve better circulation in the pond. If H_2S is detected at more than 20 parts per million at the downwind property boundary, the facility will be evacuated. New Mexico state police, Lea County Sherriff, Lea County Emergency Management, and the ODC will be notified. If mitigation of H_2S is needed, Phoenix Environmental will be contacted to provide response personnel, equipment and supplies. Logs of incidences will be maintained for at least five (5) years at the scalehouse or other secure location and made available to the OCD per request.

1.4 Dissolved Oxygen and pH Monitoring

Daily tests will be taken for pH and dissolved oxygen in all evaporation ponds. Dissolved oxygen and pH play key roles in the treatment and removal of H_2S during the aeration process provided by the mechanical evaporators. Optimum levels for the pH range from 8.2-9.0 and sodium hydroxide will be added as needed to ponds to ensure pH levels remain within the optimum range. As needed, the aeration will be increased to introduce more dissolved oxygen into the evaporation ponds. The optimum level of dissolved oxygen is above 0.5 parts per million.

1.5 H_2S Management Plan Coordination

Organizations listed in this plan will be provided a copy and will familiarize themselves with the plan. They are responsible for identifying the types of emergencies and responses that needed. All organizations are invited to visit the facility and assess the site operations, locations of processing areas, and provide insight on emergency response procedures.

APPENDIX B

CONTINGENCY PLAN

1.0 INTRODUCTION

In accordance with NMAC 19.15.36.13.N, the following sections provide a contingency plan. The plan is designed 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. The operator shall carry out plan provisions immediately whenever there is a fire, explosion, or release of contaminants or oilfield waste constituents that could threaten fresh water, public health, safety, or the environment; provided the emergency coordinator may deviate from the plan as necessary in an emergency situation. Emergency coordinators are provided in Table K.B.1 and will act as the contingency plan emergency coordinators. If no emergency contact can be reached, the employee who identified the situation shall follow the necessary steps until an emergency contact is available. Emergency contact may amend the plan during an emergency, as necessary, to protect fresh water, public health, safety, or the environment. Table K.B.2 lists the response agencies and contacts.

Table K.B.1 - LIST OF FACILITY EMERGENCY COORDINATORS

Primary Emergency Coordinator			
Name:	TBD	Work Phone:	(575) TBD
Title:	Facility Manager	Mobile Phone:	(575) TBD
Alternate Emergency Coordinator			
Name:	TBD	Work Phone:	(575) TBD
Title:	Facility Operator	Mobile Phone:	(575) TBD
Onsite Emergency Coordinator			
Name:	TBD	Work Phone:	(575) TBD
Title:	Facility Operator	Mobile Phone:	(575) TBD

Table K.B.2 - EMERGENCY RESPONSE AGENCIES AND CONTACTS

Agency/Organization	Emergency Number
1. Fire	
Eunice Fire Department	911 or (575) 394-3258
2. Police	
Lea County Sheriff Department	911 or (575) 396-8200
New Mexico State Police	911 or (505) 827-3394
3. Medical/Ambulance	
Lea County EMS	911
Lea Regional Medical Center	(575) 492-5000
5419 N. Lovington Highway	
Hobbs, NM 88240	
4. Response Firm	
Phoenix Environmental, LLC.	(575) 391-9685
2113 N French Drive	
Hobbs, NM 88240	
5. OCD Emergency Response Contacts	
Hobbs Oil Conservation Division	(575) 393-6161
1625 N. French Drive	(575) 371-3186 (mobile)
Hobbs, NM 88240	
Santa Fe Oil Conservation Division	(505) 476-3440
1220 South St. Francis Drive	
Santa Fe, NM 87505	
6. State Emergency Response Contacts	
Environmental Emergencies (24 hr) (NMED)	(505) 827-9329
New Mexico Environment Department	(505) 827-0197
Solid Waste Bureau, Santa Fe	
7. Local Emergency Response Contacts	
Lea County Emergency Management	(575) 391-2983
8. Federal Emergency Response Contacts	
National Emergency Response Center	
(U.S. Coast Guard)	(800) 424-8802
Region VI Emergency Response Hotline	
(USEPA)	(214) 665-2200

1.1 Emergency Response Team Coordination

Eunice Police Department, Eunice Fire Department, hospitals, contractor, and local response teams will be given copies of the contingency plan. It is encouraged that the listed organizations familiarize themselves with the contingency plan and make a site visit to become familiar with daily operations as well as provide input regarding the contingency plan.

1.2 Fire Prevention and Preparedness

Employees will be trained before working at the facility and annually thereafter to take preventative measures to avoid fires. This includes regular inspections of incoming waste and vehicles onto the site. Table K.B.3 includes a list of emergency equipment at the surface

waste management facility, such as fire-extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment, containing a physical description of each item on the list and a brief outline of its capabilities.

Table K.B.3 - EMERGENCY RESPONSE EQUIPMENT LIST[1]

Equipment Description	Quantity	Location	Use(s)
10-lb ABC rated fire extinguisher	2	Gatehouse/Scalehouse[2]	Firefighting
10-lb ABC rated fire extinguisher	2	Trucks	Firefighting
10-lb ABC rated fire extinguisher	1	Heavy equipment	Firefighting
20-lb ABC rated fire extinguisher	1	Oil process tanks	Firefighting
20-lb ABC rated fire extinguisher	1	Oil sales tanks	Firefighting
20-lb ABC rated fire extinguisher	1	Produced water receiving tanks	Firefighting
20-lb ABC rated fire extinguisher	1	Diesel storage tank	Firefighting
Loader	1	Facility	Berm repair
Oil Booms	4	NE corner of pond	Oil containment
Self-contained breathing apparatus	1 per employee	Gatehouse/Scalehouse[2]	Protective gear for employees
Pair leather gloves	1 per employee	Assigned to employee	Protective gear for employees
Nomex coveralls	7 per employee	Assigned to employee	Protective gear for employees
Pair safety glasses	1 per employee	All employee workstations	Protective gear for employees
Round-point wood handle shovels	2	Gatehouse/Scalehouse[2]	Contain spillage, putting out fires
First aid kit	1	Gatehouse/Scalehouse[2]	First aid
First aid kit	1 per vehicle	Facility vehicles	First aid
Eye wash station	1	Produced water receiving tanks	First aid
Portable 2-way radio	1 per employee	Basic unit at the gatehouse/scalehouse[2]	Communications
Cell phones	min. 3	Facility manager Facility operator Facility operator	Communications
Office phone	2	Gatehouse/Scalehouse[2]	Communications
Mobile pressure washer	1	Mobile	Decontaminating equipment

1.3 Implementation

In the event of a fire, explosion, or release of contaminants or oilfield waste constituents, Table K.B.4 shall be followed to assess the emergency. Table K.B.5 shall be followed for notification of the release or fire.

Table K.B.4 - IMPLEMENTATION, ASSESSMENT, AND NOTIFICATION PROCEDURES FOR RELEASES (BREAKS, LEAKS, SPILLS, RELEASES, FIRES, OR BLOWOUTS)

1. **Notify the EC:** The employee who first becomes aware of the emergency will immediately notify the Primary EC, Alternate EC, and Onsite EC, if necessary. Notification will be made in person, or via telephone, or radio. The responding EC will assume full authority over the situation.
2. **Assess source, amount, and extent of release:** The EC will assess the source, amount and extent of spill or release, or released material resulting from a fire or explosion and determine possible hazards to fresh water, public health, safety, or the environment.
3. **Contain and prevent spread of release:** The EC assessment of the emergency situation will be the basis for attempting to control the release or implementing an evacuation, as well as notifying appropriate state and local authorities if needed.
4. **Notification of emergency authorities:** If deemed safe by the EC, the appropriate C.K. Facility response equipment and personnel will be dispatched to the scene of the release. Personnel will initiate actions within their scope of training to contain the release and prevent the spread and/or windblown dispersion of the release. Depending on the type of release, appropriate equipment may include deployment of absorbents for spills, fire extinguishers, and/or earthmoving equipment.
5. **Notification of emergency authorities:** If the EC assessment indicates a need to notify appropriate state and local emergency authorities, notification will be initiated immediately. OCD will be notified as necessary.
6. **Divert traffic and restrict persons from area:** C.K. Facility personnel not actively involved in release control operations will be restricted from the area until the area is determined safe by the EC and, if appropriate, the on-scene senior emergency authority (i.e., fire, police, hazard, or other official). Vehicular traffic will be diverted away from release response activities until situation is abated.

Table K.B.5 - PART 29: RELEASE NOTIFICATION

19.15.29.7	**DEFINITIONS:**
A.	"Major release" means:
(1)	An unauthorized release of a volume, excluding gases, in excess of 25-barrels;
(2)	An unauthorized release of a volume that:
(a)	Results in a fire;
(b)	Will reach a watercourse;
(c)	May with reasonable probability endanger public health; or
(d)	Results in substantial damage to property or the environment;
(3)	An unauthorized release of gases in excess of 500-MCF; or
(4)	Release of a volume that may with reasonable probability be detrimental to water or exceed the standards in Subsections A and B or C of NMAC 19.15.30.9.
B.	"Minor release" means an unauthorized release of a volume, greater than 5-barrels but not more than 25-barrels; or greater than 50-MCF but less than 500-MCF of gases.

19.15.29.8	**RELEASE NOTIFICATION:**
A.	The emergency contact shall notify the division of unauthorized release occurring during the drilling, producing, storing, disposing, injecting, transporting, servicing or processing of oil, gases, produced water, condensate or oil field waste including regulated NORM, or other oilfield related chemicals, contaminants or mixture of the chemicals or contaminants, in accordance with the requirements of NMAC 19.15.29.
B.	The emergency contact shall notify the division in accordance with NMAC 19.15.29 with respect to a release from a facility of oil or other water contaminant, in such quantity as may with reasonable probability be detrimental to water or exceed the standards in Subsections A and B, or C of NMAC 19.15.30.9.
19.15.29.9	**REPORTING REQUIREMENTS:** The emergency contact shall provide notification of releases in NMAC 19.15.29.8 as follows:
A.	The person shall report a major release by giving both immediate verbal notice and timely written notice pursuant to Subsections A and B of NMAC 19.15.29.10.
B.	The person shall report a minor release by giving timely written notice pursuant to Subsection B.
19.15.29.10	**CONTENTS OF NOTIFICATION:**
A.	The emergency contact shall provide immediate verbal notification within 24-hrs of discovery to the division district office for the area within which the release takes place. In addition, the person shall provide immediate verbal notification of a release of a volume that may with reasonable probability be detrimental to water or exceed the standards in Subsections A and B or C of 19.15.30.9 NMAC to the division's environmental bureau chief. The notification shall provide the information required on form C-141.
B.	The emergency contact shall provide timely written notification within 15-days to the division district office for the area within which the release occurs by completing and filing form C-141. In addition, the person shall provide timely written notification of a release of a volume that may with reasonable probability be detrimental to water or exceed the standards in Subsections A and B or C of 19.15.30.9 NMAC to the division's environmental bureau chief within 15-days after the release is discovered. The written notification shall verify the prior verbal notification and provide appropriate additions or corrections to the information contained in the prior verbal notification.
19.15.29.11	**CORRECTIVE ACTION:** The emergency contact shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.

1.4 Evacuation Plan

A generalized fire or threat of fire/explosion or a spill or leak cannot be avoided due to the type of waste accepted at the facility. The following evacuation plan shall be followed for emergencies when site condition constitutes an evacuation of the site:

1. All facility personnel will be contacted by facility radios, cellular devices, or the facility telephone.
2. Any incoming waste loads and vehicles will be diverted away from the area where the emergency is occurring.

3. Incoming waste loads and vehicles will be routed toward facility exits in accordance with Figure A.13.
4. All site personnel will be directed to the liquids processing scalehouse or the landfill scalehouse where the emergency contact will do a headcount to identify any missing persons.
5. Once all personnel are accounted for and assembled, they will assist the emergency contact as needed or evacuate the site upon directions from the emergency contact.

1.5 Notification of Authorities

The emergency coordinator will immediately notify onsite personnel by use of onsite communication systems when there is imminent or an actual emergency situation. The following list of contacts will also be contacted by the emergency contact immediately when there is imminent or an actual emergency situation:

OCD

- Hobbs office (575) 393-6161
- Mobile phone (575) 370-3180
- Santa Fe office (575) 476-3440
- New Mexico State Police 911 or (575) 392-5580
- Lea County Sherriff Department 911 or (575) 396-3611
- Lea County Emergency Management 911 or (575) 391-2983

1.6 Control Procedures

The emergency contact will focus initial efforts on the safety and protection of the facility personnel and the persons using the facility. Control procedures shall only be implemented by the emergency contact once an assessment of situation and the possible hazards to fresh water, public health, safety, or the environment has been completed. No facility personnel or persons utilizing the site shall attempt to contain or control fires, explosions, spills, or leaks beyond their corresponding scope of safety, training, and available equipment.

1.7 Fire Control

Fire control shall not be implemented by facility staff until untrained personnel and customers are a safe distance from the fire. Table K.B.6 shows the control guidelines to be utilized.

Table K.B.6 - FIRE/EXPLOSION: CONTROL GUIDELINES

1. Initiate fire control: The EC and C.K. Facility personnel will initiate response actions within the scope of their training to control the spread of the fire.
2. P.A.S.S. Method: Fires will generally be controlled with ABC-type fire extinguishers using the P.A.S.S. method (Pull pin, Aim nozzle, Squeeze trigger, Sweep from side to side to extinguish).
3. Smother Method: Fires may also be smothered with cover materials (i.e., soil, caliche) when possible to extinguish.
4. Available water sources: Fires may be doused or hosed with available equipment, water truck, etc.
5. Evacuate and notify emergency authorities: If at any time the scope of the fire is beyond the capabilities of C.K. Facility personnel to contain and/or extinguish, the EC will contact the local Fire Department or the Lea County Emergency Management (**Table K.B.2**) for assistance. Personnel and visitors will be instructed to evacuate the area.
6. Monitor situation: The EC will monitor for leaks, pressure buildup, gas generation, or rupture in valves, pipes, or equipment as appropriate (NMAC 19.15.36.13.N(11)).
7. Recordkeeping/reporting: The EC will complete an Incident Report Form (**Appendix C**) and maintain a copy in the Facility Operating Record, readily accessible for OCD inspection.

The EC will meet with personnel and response agencies to assess the cause of the emergency as needed and document the incident. The identified causative agent shall be removed from the facility if re-ignition may occur. Personnel involved with the handling, transportation, and placement of materials will be informed of resultant actions. If needed, the EC will update this contingency plan to mitigate further issues.

1.8 Spills/Release Control

Site personnel will be trained to inspect incoming loads to intercept potential unauthorized wastes or loads of concern. Containment, control, and characterization of the release will be conducted by the EC after all untrained personnel and persons utilizing the site are at a safe distance. Immediately after the emergency situation, the EC will characterize the release to properly contain and control. The EC will then make necessary plans for the separation, storage, if needed, or disposal of wastes, water, or contaminated materials. An incident report will be completed to document the details of the emergency and the resulting action. Table K.B.7 lists the spill/release control guidelines to follow.

Table K.B.7 - SPILL/RELEASE: CONTROL GUIDELINES

1. Initiate control: The EC and C.K. Facility personnel will initiate response actions within the scope of their training to control the spill/release.
2. Removal or segregation: Determine if the material can be safely removed to a designated waste inspection/segregation area for further evaluation. If the materials cannot be safely relocated, contain them for investigation and sampling using the spill control list. If necessary, shut down operations until safe conditions are restored.
3. Contain release: Attempt to contain the release to the smallest area possible. Examples of equipment available for spill containment are non-reactive sorbent materials, oil booms, sand, shovels and heavy equipment. A third-party contractor is also available for emergency response to augment efforts by on-site personnel.
4. Sampling: After isolating the contaminants and contaminated media, inspect them to determine if sampling is appropriate. If appropriate, isolate contaminants in the waste inspection or segregation area, or in designated leak-proof containers, until characterization is complete.
5. Cleanup: After the release has been contained and necessary samples have been obtained, cleanup will be initiated by removing the spilled materials, sorbent materials, soils used for containment, etc.
6. Equipment monitoring: Liners and equipment in use, including valves and pipes, will be monitored for leaks, pressure buildup, gas generation or rupture as appropriate (NMAC 19.15.36.13.N(11)).
7. Verification sampling: Dependent on the type of material spilled, the EC will assess requirements for cleanup verification including the collection of samples for appropriate analytical testing.
8. Disposal or processing: When visual and/or laboratory characterization is complete, determine appropriate processing or disposal procedures for that waste type. Send residuals for disposal to a facility that is approved for managing that type of waste.
9. Evacuate and notify emergency authorities: If at any time the scope of the spill/release is beyond the capabilities of the on-site personnel to contain and/or extinguish it, the EC will contact the local Fire Department or Lea County Emergency Management (**Table K.B.2**) for assistance. Personnel and visitors will be instructed to evacuate the area.
10. Recordkeeping/reporting: The EC will complete an Incident Report Form (**Appendix C**) and maintain a copy in the Facility Operating Record, readily accessible for OCD inspection.

1.9 Equipment Maintenance

All equipment used for the emergency response will be inspected, decontaminated, cleaned, and made ready to use or replaced if necessary immediately following the incident. The EC will verify that equipment has been maintained after the emergency response and will be fit for reuse for the next emergency incident.

1.10 Storage and Treatment of Released Material

Spilled or contaminated material approved to be disposed of at the C.K. Facility may be disposed of following standard operating practices. Hazardous material(s) not approved for disposal at the site will be containerized and stored with the applicable local, state, and federal regulations. Phoenix Environmental may be called upon for 3rd party services as well. No oilfield waste, which may be compatible with the release material shall be treated, stored, or disposed of until all cleanup procedures are complete.

1.11 Plan Amendment

Amendments to the contingency plan will be made within five (5) working days in the event of the facility permit being revised or modified, the plan fails in the event of an emergency,

the surface waste management facility changes design, construction, operation, maintenance, or other circumstances in a way that increases the potential for fires, explosions, or releases of oilfield waste constituents that could threaten fresh water, public health, safety, or the environment or change the response necessary in an emergency, the list of emergency coordinators, or their contact information changes, or the list of emergency equipment changes.

APPENDIX C

OCD FORMS

PSC

Lea County
C.K. Diposal E&P
Landfill and Processing Facility
Daily Air and Waer Inspection form

DATE:

Morning Ambient Air H_2S

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Sampler and Time							
H_2S Reading (ppm)							
Wind Speed (mph)							
Wind Direction							

Afternoon Ambient Air H_2S

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Sampler and Time							
H_2S Reading (ppm)							
Wind Speed (mph)							
Wind Direction							

Sump Levels

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Morning Sampler and Time							
Morning Pond Level (ft)							
Morning Loading Area							
Morning Cement Slab							
Morning Pump House Sump							
Afternoon Sampler and Time							
Afternoon Loading Area							
Afternoon Pump House							
Wind Direction							

Loading Sump Emptied

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Initials and Time							

Concrete Slab Emptied

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Initials and Time							

Pond Conditions

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pond Level							
Overflow Color							
Pond Color							
Water Tempurature							
pH							
Dissolved Oxygen							
Total chlorine							
Dissolved H_2S/Sulfides							

Chemicals Added

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Chemical							
Time							
Personnel							
Chemical							
Time							
Personnel							

Manager Signature

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Manager							

C.K. FACILITY
LEACHATE MONITORING FORM

Leachate Level Data				Pumping Data			Notes
Date	Sump I.D.	Time	Monitored By	Date	Company	Volume Pumped (gal)	

C.K. FACILITY
Pond Integrity/Leak Detection Inspection Form

Date: _____ **Inspector(s):** _____

Time: _____ _____

Weather:

Temperature _____ deg. F Precipitation (last 24 hours) _____ inches

Skies _____

Wind Speed _____mph

Wind Direction _____

NOTES:

"D" indicated that a Deficiency has been noted. "P" indicated that a Photograph has been taken. "S" indicated that a Sample has been collected. Complete descriptions of Deficiencies, Photographs, and Samples are provided on attached pages. Items are referenced by Location.

Pond Condition

Location	Item			
	Erosion	Vegetation Establishment	Vectors	Sample

Leak Detection System

Riser #	Deficiency	
	Depth of H_2O	Structural Defect

Extra information or details: _____

_____

_____

_____

_____

C.K. FACILITY
INCIDENT REPORT FORM

Type of Incident and General Information

[ ]	Work Related injury/Illness	[ ]	Unsafe Act/Near Miss
[ ]	Property Damage	[ ]	Vandalism/Criminal Activity
[ ]	Vehicular Accident	[ ]	Other _____ (i.e. spill, release, fire, explosion, hot load, etc.)

Employee Name: _____ Job Title: _____

Phone No.: _____ Date of Incident: _____ Time of Incident: ____ AM/PM

Location of Incident: _____ Weather: _____

Date and Time Reported to Management: Date: _____ Time: _____ AM/PM

Reported to: _____ Title: _____ Reported by: _____

What was the injury category of incident at the time it was first reported to management?

[ ] N/A/ Employee does not claim an injury associated with this incident.
[ ] Notice Only of Injury, Declined Medical Treatment at this time.
[ ] First Aid done on site, Declined Medical Treatment at this time.
[ ] Medical Treatment. Transported by _____ to _____.
[ ] Fatality, Employee

(Section below to be filled out by EMPLOYEE)

Employee's Description of Incident

Were you injured? [ ] **yes** [ ] **no**

Type of Injury: _____

Part of Body: _____

In your own words, explain the incident: _____

_____

_____

_____

_____

_____

Employee Signature: _____

Date: _____

APPENDIX D

EVAPORATION CALCULATIONS

HOBBS LEA CO AP, NEW MEXICO

Period of Record General Climate Summary - Precipitation

Station:(294028) HOBBS FAA AIRPORT														
From Year=1941 To Year=2012														
	Precipitation											Total Snowfall		
	Mean	High	Year	Low	Year	1 Day Max.		>= 0.01 in.	>= 0.10 in.	>= 0.50 in.	>= 1.00 in.	Mean	High	Year
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	0.36	2.09	1949	0.00	1953	0.68	04/1958	3	1	0	0	1.4	9.0	1958
February	0.31	1.02	1958	0.00	1942	0.68	21/1958	3	1	0	0	2.5	21.2	1956
March	0.29	1.41	1958	0.00	1954	0.52	20/1949	2	1	0	0	1.3	13.0	1958
April	0.83	2.26	1942	0.00	2011	1.40	12/1950	4	2	1	0	0.1	0.8	1949
May	1.76	5.02	1954	0.00	2011	1.72	17/1951	6	3	1	0	0.0	0.0	1942
June	0.74	3.19	1950	0.00	2011	1.68	20/1950	3	1	1	0	0.0	0.0	1948
July	1.47	3.49	1948	0.00	1954	1.98	22/1948	5	3	1	0	0.0	0.0	1948
August	1.61	4.08	1954	0.14	2011	2.28	18/1957	6	3	1	1	0.0	0.0	1948
September	2.27	5.84	1949	0.05	1951	2.13	09/1949	4	3	2	1	0.0	0.0	1941
October	1.70	3.81	1941	0.00	1952	1.73	04/1941	5	3	1	0	0.0	0.0	1941
November	0.18	1.07	1952	0.00	1948	0.68	04/1952	2	1	0	0	0.6	7.0	1957
December	0.19	0.89	2011	0.00	1950	0.72	24/2011	1	1	0	0	0.8	8.3	2011
Annual	11.72	18.66	1949	5.06	1956	2.28	19570818	43	22	8	3	6.7	21.2	1956
Winter	0.86	2.50	1949	0.02	2011	0.72	20111224	7	2	0	0	4.7	21.2	1956
Spring	2.89	6.32	1954	0.00	2011	1.72	19510517	11	6	2	1	1.4	13.0	1958
Summer	3.82	9.19	1950	0.36	2011	2.28	19570818	14	7	2	1	0.0	0.0	1948
Fall	4.15	6.25	1949	0.41	1951	2.13	19490909	11	7	3	1	0.6	7.0	1957

Table updated on Oct 31, 2012

For monthly and annual means, thresholds, and sums:
Months with 5 or more missing days are not considered
Years with 1 or more missing months are not considered
Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

Western Regional Climate Center, wrcc@dri.edu

Evaporation Stations

Standard daily pan evaporation is measured using the four-foot diameter Class A evaporation pan. The pan water level reading is adjusted when precipitation is measure to obtain the actual evaporation. Most Class A pans are installed above ground, allowing effects such as radiation on the side walls and heat exchnges with the pan material. These effects tend to increase the evaporation totals. The amounts can then be adjusted by multiplying the totals b 0.70 or 0.80 to more closely estimate the evaporation from naturally existing urfaces such as a shallow lake, wet soil or other moist natural surfaces.

Many stations do not measure pan evaportation during winter months. A "0.00" total indicates no measuement is taken.

Stations marked with an asterisk (*) have estimated totals computed from meteorological measurements using a form of the Penman equation.

Click on a State: Arizona, California, Colorado, Hawaii & Pacific Islands, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

ALASKA

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
BROOKS RIVER	1967-1990	0.00	0.00	0.00	0.00	0.00	2.48	2.88	1.63	0.73	0.00	0.00	0.00	7.72
CENTRAL 2	1962-2005	0.00	0.00	0.00	0.00	0.00	3.97	4.00	2.43	2.19	0.00	0.00	0.00	12.59
COPPER CENTER	1961-1982	0.00	0.00	0.00	0.00	0.00	6.03	4.06	3.14	1.71	0.00	0.00	0.00	14.94
JUNEAU AP	1949-2005	0.00	0.00	0.00	0.00	3.33	3.29	3.82	3.14	1.02	0.00	0.00	0.00	14.60
MATANUSKA AES	1917-2005	0.00	0.00	0.00	0.00	4.22	4.44	3.92	3.05	1.83	0.00	0.00	0.00	17.46
MC GRATH WB AIRPORT	1939-2005	0.00	0.00	0.00	0.00	4.20	4.42	3.65	2.29	1.40	0.00	0.00	0.00	15.96
MCKINLEY PARK	1949-2005	0.00	0.00	0.00	0.00	0.00	2.96	2.55	1.75	0.53	0.00	0.00	0.00	7.79
OIL WELL ROAD E P	1967-1974	0.00	0.00	0.00	0.00	0.00	5.17	3.83	2.81	1.40	0.00	0.00	0.00	13.21
OLD EDGERTON	1970-1996	0.00	0.00	0.00	0.00	3.31	4.56	4.16	3.04	1.65	0.00	0.00	0.00	16.72
PALMER AAES	1949-2005	0.00	0.00	0.00	0.00	4.44	4.71	4.12	2.96	1.75	0.00	0.00	0.00	17.98
RAMPART 2	1963-1978	0.00	0.00	0.00	0.00	4.23	4.56	3.79	2.56	1.54	0.00	0.00	0.00	16.68
COLLEGE UNIV EXP STN	1931-2005	0.00	0.00	0.00	0.00	4.25	5.04	4.56	2.82	1.38	0.00	0.00	0.00	18.05

ARIZONA

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
BARTLETT DAM	1939-2005	3.92	4.92	7.10	10.02	13.77	16.21	15.56	13.95	12.10	9.66	5.86	4.47	117.54
BLACK RIVER PUMPS	1948-2005	0.00	0.00	0.00	6.93	8.83	10.12	7.99	7.02	5.70	3.94	0.00	0.00	50.53
DAVIS DAM # 2	1958-1977	7.49	7.46	9.75	12.78	16.71	19.48	19.87	17.91	14.64	12.03	8.40	7.80	154.32
DAVIS DAM	1948-1961	3.54	5.13	7.60	9.30	11.33	13.33	13.14	12.15	9.51	7.24	5.38	3.88	101.53
DOUGLAS	1948-2005	0.00	0.00	0.00	11.34	13.19	13.55	10.66	10.27	8.18	6.44	0.00	0.00	73.63
FORT VALLEY	1909-2005	0.00	0.00	0.00	0.00	5.86	7.37	6.03	4.91	3.35	0.00	0.00	0.00	27.52
GRAND CANYON NATL PARK	1957-1977	0.00	0.00	0.00	0.00	6.94	10.45	8.79	8.12	6.83	4.91	0.00	0.00	46.04
GRAND CANYON N P 2	1976-2005	0.00	0.00	0.00	0.00	7.46	9.80	8.94	7.29	6.10	4.45	0.00	0.00	44.04
HAWLEY LAKE	1967-1988	0.00	0.00	0.00	0.00	7.57	8.55	6.89	5.48	4.68	0.00	0.00	0.00	33.17
MANY FARMS SCHOOL	1951-1975	0.00	3.66	5.45	9.18	12.23	15.14	12.87	10.88	9.40	6.54	3.26	2.16	90.77
MC NARY 2 N	1933-2005	0.00	0.00	0.00	0.00	7.86	8.25	6.60	5.98	4.90	3.97	0.00	0.00	37.56
MESA	1896-2005	3.03	4.02	6.11	8.64	11.33	12.67	13.10	11.87	9.69	6.81	4.15	2.96	94.38
NOGALES 6 N	1952-2005	3.59	4.46	7.01	9.35	11.91	13.31	10.00	8.28	8.06	7.17	4.49	3.57	91.20
PAGE	1957-2005	0.00	2.60	5.84	8.27	10.72	12.86	13.06	11.38	8.42	5.13	2.29	0.00	80.57
ROOSEVELT 1 WNW	1905-2005	2.44	3.54	5.90	8.64	11.96	14.50	14.36	12.27	10.10	6.78	3.68	2.32	96.49
SACATON	1908-2005	3.83	5.15	7.51	10.06	13.56	14.89	13.69	12.05	10.20	7.91	4.94	3.63	107.42
SAFFORD AGRICULTRL CTR	1948-2005	2.63	3.83	7.14	10.54	13.81	15.38	13.13	10.68	8.73	5.90	3.28	2.52	97.57
SAN CARLOS RESERVOIR	1948-2005	2.25	3.27	5.66	8.40	11.70	13.94	13.43	11.40	9.23	6.31	3.53	2.18	91.30
SIERRA ANCHA	1913-1979	2.19	2.93	4.58	6.42	8.97	10.94	10.39	8.88	8.00	6.22	3.50	2.37	75.39
SNOWFLAKE 15 W	1965-1998	0.00	0.00	0.00	0.00	11.03	14.38	11.29	9.12	7.96	6.45	3.40	0.00	63.63
STEWART MOUNTAIN	1948-2005	3.52	4.56	6.94	10.04	13.11	14.27	14.44	13.10	10.69	7.95	4.53	3.08	106.23
TEMPE A S U	1953-2005	1.56	2.93	4.79	7.04	9.44	10.85	10.99	9.92	7.63	5.14	2.56	1.44	74.29
TUCSON UNIV OF ARIZONA	1894-2005	3.25	4.57	6.95	9.88	12.87	14.91	13.17	11.65	10.35	7.81	4.73	3.37	103.51
TUCSON U OF ARIZ # 1	1982-2005	3.94	4.68	7.53	10.57	14.14	16.51	14.61	12.17	10.71	8.05	4.93	3.23	111.07
WAHWEAP	1961-2005	1.95	2.77	6.30	9.42	12.82	14.94	15.26	13.31	10.06	7.06	3.69	2.60	100.18
WHITERIVER 1 SW	1900-2005	1.69	2.94	5.84	8.01	9.92	11.70	9.48	8.47	7.68	5.87	3.51	2.54	77.65
WINKELMAN 6 S	1942-1980	3.12	4.03	7.00	9.98	12.40	13.90	11.19	9.84	9.56	7.51	4.31	2.94	95.78
YUMA CITRUS STATION	1920-2005	3.58	4.36	6.81	9.17	11.75	13.19	13.85	12.28	9.51	6.91	4.43	3.37	99.21

CALIFORNIA

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANTIOCH PUMP PLANT 3	1955-2005	1.17	1.99	4.25	6.27	8.96	10.84	11.60	10.06	7.77	4.91	2.07	1.22	71.11
AUBURN DAM PROJECT	1972-1984	1.42	1.89	3.13	4.89	7.73	10.08	11.66	10.70	8.08	5.00	1.97	1.36	67.91

TIBER DAM	1952-2005	0.00	0.00	0.00	0.00	4.51	6.46	7.65	5.56	4.34	0.00	0.00	0.00	28.52
VALIER	1911-2005	0.00	0.00	0.00	0.00	5.37	6.49	7.33	5.62	4.72	0.00	0.00	0.00	29.53
WESTERN AG RESEARCH CNT	1965-2005	0.00	0.00	0.00	0.00	5.08	6.03	7.26	6.07	4.14	2.25	0.00	0.00	30.83
YELLOWTAIL DAM	1948-2005	0.00	0.00	0.00	0.00	6.94	8.84	10.60	9.74	6.58	4.86	0.00	0.00	47.56

NEVADA

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
BEOWAWE U OF N RANCH	1972-2005	0.00	0.00	0.00	3.98	7.17	8.68	10.42	9.52	6.97	4.43	0.00	0.00	51.17
BOULDER CITY	1931-2004	3.71	4.68	7.56	10.67	13.79	16.57	16.45	14.41	11.51	8.11	4.87	3.69	116.02
CALIENTE	1928-2005	0.00	0.00	3.97	6.82	8.57	10.58	11.13	9.41	6.89	4.35	1.91	0.00	63.63
CENTRAL NEVADA FIELD LA	1965-1986	0.00	0.00	2.98	5.95	8.69	10.49	12.24	11.31	8.08	4.88	1.73	0.00	66.35
FALLON EXPERIMENT STN	1950-1992	1.34	2.23	4.39	6.15	7.70	8.91	9.87	8.63	6.10	3.90	1.91	1.37	62.50
LAHONTAN	1948-2005	0.00	0.00	0.00	7.18	9.64	11.58	13.75	12.23	7.83	4.51	2.09	0.00	68.81
LOGANDALE	1968-1992	2.55	3.61	5.26	8.96	12.44	14.20	14.38	12.07	8.67	7.66	3.86	2.89	96.55
RUBY LAKE	1948-2005	0.00	0.00	0.00	5.10	7.09	8.90	10.54	9.37	6.51	3.95	0.00	0.00	51.46
RYE PATCH DAM	1948-2005	0.00	0.00	3.71	5.83	7.38	9.23	11.15	10.06	6.95	4.30	0.77	0.00	59.38
SILVERPEAK	1967-2005	0.00	3.84	7.26	10.13	13.60	16.31	17.98	15.92	11.32	6.88	2.94	0.00	106.18
TOPAZ LAKE	1957-2005	0.00	0.00	0.00	7.15	9.11	10.94	12.68	11.56	8.80	5.95	2.79	0.00	68.98

NEW MEXICO

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ABIQUIU DAM	1957-2005	0.00	0.00	6.06	7.43	9.95	11.39	10.52	8.90	7.23	5.30	3.13	2.22	72.13
AGRICULTURAL COLLEGE	1892-1959	3.01	4.00	7.89	10.20	8.65	13.99	12.33	11.16	8.31	6.28	4.35	2.89	93.06
ALAMOGORDO DAM	1939-1975	3.73	4.35	8.21	11.30	12.88	14.43	13.66	11.59	9.17	7.19	4.89	3.46	104.86
ANIMAS	1923-2005	3.87	4.91	8.29	10.78	12.36	14.25	11.60	11.07	8.54	6.71	4.69	3.61	100.68
ARTESIA 6 S	1914-2005	4.38	3.03	7.25	7.66	12.11	13.13	10.86	10.44	9.36	6.34	3.12	0.00	87.68
BITTER LAKES WL REFUGE	1950-2005	2.67	3.93	6.82	9.60	11.31	12.62	11.88	10.16	8.02	5.85	3.53	2.50	88.89
BOSQUE DEL APACHE	1914-2005	3.21	4.20	7.76	10.20	11.61	13.13	11.56	10.36	8.03	6.25	3.66	2.54	92.51
BRANTLEY DAM	1987-2005	4.65	0.00	8.62	11.77	14.61	15.46	14.19	12.22	9.88	7.97	5.77	4.34	109.48
CABALLO DAM	1938-2005	4.42	5.10	8.56	11.37	13.59	14.80	13.08	11.35	9.26	7.27	4.78	3.48	107.06
CAPULIN NATL MONUMENT	1966-1979	0.00	0.00	0.00	0.00	9.08	10.57	9.71	9.18	7.65	0.00	0.00	0.00	46.19
CLOVIS 13 N	1929-2005	3.83	4.12	6.63	8.72	10.15	11.45	11.65	9.55	7.64	5.78	3.95	3.21	86.68
COCHITI DAM	1975-2005	0.00	4.14	6.44	8.48	11.07	12.95	12.38	10.62	8.91	6.29	3.94	2.79	88.01
CONCHAS DAM	1938-2005	0.00	0.00	7.35	8.88	10.29	11.69	11.37	10.06	8.24	6.18	4.04	2.79	80.89
EAGLE NEST	1937-2005	0.00	0.00	0.00	4.91	7.67	7.83	7.07	5.87	5.30	4.31	0.00	0.00	42.96
EL VADO DAM	1923-2005	0.00	0.00	3.61	5.43	7.46	8.84	8.52	6.91	5.66	3.84	1.72	0.00	51.99
ELEPHANT BUTTE DAM	1917-2005	3.47	4.87	8.61	12.22	14.94	16.37	14.15	12.05	9.78	7.70	4.91	3.34	112.41
ESTANCIA	1914-2005	0.00	0.00	3.26	6.79	8.56	9.27	8.61	7.10	5.60	3.82	2.62	0.00	55.63
FARMINGTON AG SCIENCE C	1978-2005	0.00	0.00	0.00	7.97	10.06	12.00	12.52	10.70	8.15	5.41	0.00	0.00	66.81
FLORIDA	1939-1992	3.54	4.81	8.10	10.94	13.03	14.80	11.84	10.10	8.51	6.58	4.57	3.11	99.93
GALLUP RANGER STN	1966-1975	0.00	0.00	0.00	6.61	9.31	12.12	10.50	8.70	7.95	5.07	2.20	0.00	62.46
JEMEZ DAM	1953-2005	0.00	0.00	0.00	9.91	12.27	13.95	14.29	11.45	9.80	6.72	3.65	0.00	82.04
JORNADA EXP RANGE	1925-2005	2.50	4.18	7.24	10.06	11.94	12.85	10.88	9.53	7.82	5.71	3.61	2.50	88.82
LAGUNA	1914-2005	0.00	0.00	0.00	8.47	9.33	11.98	10.76	8.88	6.83	5.00	1.98	0.00	63.23
LAKE AVALON	1914-1979	4.49	5.33	9.42	12.36	14.31	15.16	14.14	12.33	9.25	7.26	4.68	4.20	112.93
LAKE MC MILLAN	1941-1949	0.00	0.00	0.00	13.78	8.14	14.26	13.38	13.45	10.35	6.15	0.00	0.00	79.51
LOS LUNAS 3 SSW	1923-2005	1.87	2.81	5.27	7.77	9.74	10.49	10.06	8.67	6.58	4.64	2.75	2.45	73.10
NARROWS	1948-1964	3.09	5.67	7.62	11.07	13.37	15.44	13.07	11.42	9.97	7.20	4.32	2.64	104.88
NAVAJO DAM	1963-2005	0.00	0.00	0.00	6.58	9.10	11.07	11.24	9.66	7.22	4.74	0.00	0.00	59.61
PORTALES 7 WNW	1934-1960	3.26	4.57	8.24	8.85	10.72	12.16	10.44	9.28	7.95	5.98	4.15	3.53	89.13
HOOD RANGER STN	1954-2005	0.00	0.00	0.00	7.84	9.02	10.81	8.25	6.87	6.12	5.14	2.65	0.00	56.70
ROSWELL WSO AIRPORT	1893-1972	0.00	0.00	0.00	11.29	0.00	15.87	12.11	12.63	7.92	6.97	4.66	4.51	75.96
SANTA FE	1867-1972	0.00	0.00	3.00	7.28	8.73	10.93	9.95	8.26	7.15	5.10	2.50	0.00	62.90
SANTA FE 2	1972-2005	0.00	0.00	0.00	7.10	9.76	11.31	10.36	9.20	7.41	5.08	0.00	0.00	60.22
SHIPROCK	1926-2005	0.00	0.00	0.00	7.84	10.57	14.44	13.17	10.80	9.80	6.54	0.00	0.00	73.16
SOCORRO	1914-2005	0.00	0.00	4.83	7.09	9.17	9.35	8.56	7.57	5.73	4.14	0.00	0.00	56.44
STATE UNIVERSITY	1959-2005	3.00	4.33	7.40	9.90	12.03	12.91	12.05	10.34	8.14	6.17	3.85	2.79	92.91
SUMNER LAKE	1921-2005	0.00	0.00	7.33	10.22	12.35	13.54	13.36	11.16	9.02	6.97	4.92	3.17	92.04
TUCUMCARI 4 NE	1904-2005	0.00	0.00	0.00	9.83	11.53	13.11	13.00	11.13	8.96	6.74	0.00	0.00	74.30
UTE DAM	1965-2005	4.38	4.91	7.53	8.78	10.75	10.49	10.92	9.42	7.56	6.68	4.98	3.04	89.44

OREGON

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ASTOR EXPERIMENT STN	1948-1973	0.56	0.96	1.47	2.21	3.75	3.95	4.65	4.10	2.95	1.65	0.87	0.70	27.82
BEND 7 NE	1991-2005	0.00	0.00	0.00	4.25	6.14	6.69	8.66	7.91	5.42	0.00	0.00	0.00	39.07
CORVALLIS STATE UNIV	1889-2005	0.00	0.00	1.79	2.96	4.59	5.86	7.70	7.07	5.06	2.33	0.96	0.00	38.32
COTTAGE GROVE DAM	1943-2005	0.00	1.27	2.16	3.07	4.56	5.60	7.75	6.70	4.47	2.06	0.82	0.00	38.46
DETROIT DAM	1954-2005	0.19	1.16	1.69	2.51	4.38	5.90	7.68	6.64	4.24	2.05	0.88	0.46	37.78
DORENA DAM	1948-2005	0.00	1.01	1.94	2.95	4.98	6.11	8.19	7.15	4.66	2.01	0.00	0.00	39.00
FERN RIDGE DAM	1943-2005	0.39	0.79	1.92	3.17	5.03	6.21	8.12	7.09	4.76	2.21	0.67	0.34	40.70

Evaporator Water Balance
C.K. Disposal E&P Landfill and Processing Facility

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Rainfall (in.)	0.36	0.31	0.29	0.83	1.76	0.74	1.47	1.61	2.27	1.70	0.18	0.19	**11.71**
Pan Evaporation (in.)	4.49	5.33	9.42	12.36	14.31	15.16	14.14	12.33	9.25	7.26	4.68	4.20	**112.93**
Actual Evaporation (in.)	3.14	3.73	6.59	8.65	10.02	10.61	9.90	8.63	6.48	5.08	3.28	2.94	**79.05**
Net (in.)	-2.78	-3.42	-6.30	-7.82	-8.26	-9.87	-8.43	-7.02	-4.21	-4.10	-3.10	-2.75	**-67.34**
Net Evaporation (bbl/pond)	4,620	5,679	10,465	12,985	13,707	16,388	13,990	11,655	6,980	5,614	5,139	4,565	**111,786**

Notes:

1. *Rainfall obtained from Hobbs FAA Airport and is average monthly rainfall from 1941-2012.*
2. *The input is the maximum monthly produced water than can be introduced to evaporation ponds based on water balance.*
3. *Evaporation rates obtained from Lake Avalon, New Mexico 1914-1979.*
4. *Actual evaporation rates represent 70% of reported pan evaporation rate.*
5. *Pond surface area 1.88 acres.*
6. *Based on the Hobbs Wind Rose, the wind speed in this area is below 14 mph 63% of the time.*
7. *The net evaporation is **306.26 bbl/pond per day** based off the total for the year of 111,786 bbl/pond.*

Mechanical Evaporation Analysis

Mechanical Evaporation Rate (GPM)	1-ME	2	3	4	5	6	7	8	9	12	18	24
10	343	**686**	1029	1371	1714	2057	2400	2743	3086	4114	6171	8229
20	686	1371	2057	2743	3429	4114	4800	5486	6171	8229	12343	16457
30	1029	2057	3086	4114	5143	6171	7200	8229	9257	12343	18514	24686
40	1371	2743	4114	5486	6857	8229	9600	10971	12343	16457	24686	32914
50	1714	3429	5143	6857	8571	10286	12000	13714	15429	20571	30857	41143
60	2057	4114	6171	8229	10286	12343	14400	16457	18514	24686	37029	49371

Notes:

1. *Evaporation Rate per Mechanical Evaporator (ME) expressed in bbls per day*
2. *Wind speed <14 MPH 63% of the time.*
3. *US Barrel=42 Gallons*

Minimum Anticipated Mechanical Evaporation Potential

Evaporation by month	January	February	March	April	May	June	July	August	September	October	November	December	Annual BBL	BBL/Day
2-ME@10GPM	21257	19200	21257	20571	21257	20571	21257	21257	20571	21257	20571	21257	250286	686
3-ME@10GPM	31886	28800	31886	30857	31886	30857	31886	31886	30857	31886	30857	31886	375429	1029
6-ME@10GPM	63771	57600	63771	61714	63771	61714	63771	63771	61714	63771	61714	63771	750857	2057
9-ME@10GPM	95657	86400	95657	92571	95657	92571	95657	95657	92571	95657	92571	95657	1126286	3086
12-ME@10GPM	127543	115200	127543	123429	127543	123429	127543	127543	123429	127543	123429	127543	1501714	4114
18-ME@10GPM	191314	172800	191314	185143	191314	185143	191314	191314	185143	191314	185143	191314	2252571	6171
24-ME@10GPM	255086	230400	255086	246857	255086	246857	255086	255086	246857	255086	246857	255086	3003429	8229