AP - 062

STAGE 1 & 2 WORKPLAN

9/22/2006

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

September 22, 2006

Glenn Van Goten
NMOCD Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Via E-mail

RE: Samson Livestock "30" Reserve Pit, T21S, R35E, Section 30, Unit P;
NMOCD Case: Abatement Plan 62

Dear Mr. Van Goten,

On behalf of Samson Resources Company, R.T. Hicks Consultants, Ltd. is pleased to submit the Stage 1 &2 Abatement Plan for the above-referenced site. By close of business today, the file containing the plan may be downloaded from our ftp site:

ftp://hicks:k6bbuufe@ftp.swcp.com/Samson

The ftp site should be accessed via Microsoft Internet Explorer and you may need to cut and paste or type in the address shown as a link above. Early next week we will submit the Reserve Pit Closure Plan document that is a companion to the Stage 1&2 Abatement Plan. Please expect paper copies and a CD of these documents in next week's mail.

For the Livestock site we have made some changes to the design originally proposed in the CAP. Based upon the site inspection of Gandy Corp, Dale Littlejohn (Hicks Consultants) and the input from the Landowner, the remedy will conform to the following:

1. The landowner wants the site back to the original grade. Therefore we must import material, which was not originally anticipated.
2. Coarse-grained material is about 6-miles away at a State caliche quarry and fine-grained soil is about ½ mile away and will be purchased from the landowner.
3. We will create a capillary barrier, similar to the plan for BD-04 using a layering of coarse and fine material. We may use some of the landowner's fresh water to wash the caliche gravel after we install it into the pit. The controlled application of fresh water to the pit can accelerate the vadose zone remedy.
4. Because of the decision to implement the capillary barrier system, the synthetic liner is no longer required.
5. The work on site begins next Thursday, September 28 and work at the caliche quarry to excavate the coarse-grained material begins next Monday, September 25.

As we discussed in our meeting, the capillary barrier is a more robust design than the modified monolithic barrier originally proposed.

After submission of the Abatement Plan to NMOCD, we will submit notifications to the surrounding property owners and other administrative requirements of Rule 19. We plan to install the ground water recovery well and pumping system next month. We anticipate commencing pumping by mid October.

At BD-04, the contractor cannot secure a dry sieve to segregate the clean spoil pile into gravel, sand and fine-grained fractions until next month. We will keep NMOCD posted on our progress at the BD-04 site.

Please call me if you have any questions or concerns that were not already voiced in our meeting of last month.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall T. Hicks
Principal

Copy: Hobbs NMOCD office;
Samson Resources Company
Mr. Pearson, Merchant's Livestock Company

September 21, 2006

Stage 1/Stage 2 Abatement Plan

Samson Livestock 30

T21S-R35E-Section 30

Prepared for:

Samson Resources Inc

R.T. Hicks Consultants, LTD

901 Rio Grande Blvd. NW, Suite F-142, Albuquerque, NM 87104

1.0 Data Summary

Samson Investment Company (Samson) retained R.T. Hicks Consultants, Ltd. (Hicks Consultants) to address potential environmental concerns at the Samson Livestock "30" Reserve Pit located at T21S-R35E-Section 30, Unit Letter P (latitude North 32° 26' 41.2", longitude West 103° 24' 6.9"). Plate 1 is a map showing the location of the site.

Presently the reserve pit has been excavated to a depth of approximately 10 feet below ground surface (bgs) and remains open but secured by fencing. Characterization of the soil and ground water performed to date indicate the following:

1. Soil in the vadose zone at the site consist of broken caliche, very fine grain sand, and silt of the Tertiary Ogallala formation overlain by a thin layer of Quaternary age eolian silt deposits.

2. Concentrations of diesel range organics (maximum 529 mg/kg) were identified in a sample from the base of the excavated pit but no regulated hydrocarbons were present in the soil above the method detection levels.

3. Concentrations of chloride greater than 1,000 mg/kg are present in the vadose zone soils from the base of the excavated pit (10 feet bgs) to the water table (about 40 feet bgs) but are not present above 240 mg/kg in the soil outside of the pit area.

4. Shallow ground water (Ogallala aquifer) is located at approximately 40 feet bgs. The local ground water gradient direction is to the north but the measured slope is essentially flat. Regional ground water gradient is to the southeast and the saturated hydraulic conductivity of the aquifer at the site is between 50 and 100 ft/day. Background water quality is about 30 mg/L chloride and 650 mg/L TDS.

5. Ground water below the pit has been impacted by a release of the brine-based drilling fluids. The most recently measured water concentrations contain approximately 2,000 mg/L chloride and 3,700 mg/L TDS.

6. The horizontal extent of the impacted ground water is believed to be limited to the pit area based on modeling and remediation feasibility testing results.

2.0 Conclusions and Recommended Actions

The data and analysis generated by the characterization activities conclude that a properly designed evapotranspiration (ET) infiltration barrier will provide the greatest level of protection for fresh water, public health, and the environment from residual constituents of concern in the vadose zone beneath the former pit. The purpose of the vadose zone remedy is not to permanently isolate these constituents in the vadose zone, although that may be the ultimate result. The purpose of the vadose zone remedy is to minimize the downward and upward migration of soluble salts such that the rate of vertical migration, down or up, has no material impact on ground water quality or soil productivity. The attached Closure Design for Livestock 30 Reserve Pit provides the specific protocols for mitigating residual constituents of concern in the vadose zone.

In addition to the installation of an ET infiltration barrier, ground water extraction for beneficial use from a recovery well located in the center of the release area is essential to mitigate any migration of constituents of concern from the site and to capture constituents that will continue to drain from the vadose zone.

Monitoring the quality of water withdrawn from the recovery well will not only reduce the chloride mass in ground water but can be employed in an analysis that will provide an estimate of the horizontal extent of the ground water impact. The recovered water will be stored on-site and utilized immediately for oil and gas operations and, in the future after water quality has improved for livestock water and for re-vegetation efforts elsewhere in the nearby area.

Soil water and ground water monitoring will be conducted to verify the performance of the ET infiltration barrier and ground water restoration program. Decisions to expand the characterization and remediation activities will be based on the monitoring results. Documentation of the proposed corrective actions and monitoring results will be provided to the NMOCD in an annual monitoring report.

3.0 Chronology of Events

09-03-03 Samson Resources Company submitted a Form C-103 showing that a MI Auger Air rig is running surface casing to 1000 feet

12-6-2003 Completion date of well shown on "well log" available on OCD Online. Logs of well run on 12-26-03

2004 Reserve pit remained open to dry. According to the landowner, large rainfall events caused up to 4-feet of standing water in the pit.

02-16-05: A Pit registration (Form 144) was filed by Samson Resources with the NMOCD registering the drilling reserve pit with a 20-mil plastic liner at the Livestock 30-1 well site.

05-11-05: Following completion of the gas well and initial excavation of the reserve pit soil samples were collected by Samson personnel which indicated that the soil underlying the pit contained chloride concentrations and diesel-range organics in excess of values listed in NMOCD Guidance.

07-05-05: Ocotillo Environmental was contracted by Samson to conduct a subsurface investigation of the site.

07-28-05: A Site Delineation Plan was submitted to Mr. Larry Johnson of the NMOCD by Mr. Jerry Brian, of Ocotillo on behalf of Samson (Appendix A).

09-16-05: Nine hollow-stem auger holes were installed within and surrounding the reserve pit which identified elevated chloride concentrations (>1,000 mg/kg) in the south and east corners of the pit to the ground water depth (approximately 40 feet below ground surface) and in the west corner and center of the pit to a depth of 35 feet.

09-19-05: A temporary monitoring well (TMW-1) was installed in the center of the pit and a ground water sample was recovered that contained elevated chloride concentrations (see Appendix B).

10-04-05: Mr. Roger Anderson, of the NMOCD in Santa Fe was notified of the ground water impact by a representative of Ocotillo.

Undated: A report was prepared by Ocotillo that included recommendations to over-excavate the reserve pit to a depth of 30-feet, install a 20-mil plastic liner, backfill the pit with clean soil, and install monitoring wells surrounding the area to delineate the chloride plume.

03-15-06: RT Hicks Consultants, Ltd was contracted to re-evaluate the reserve pit site and determine the feasibility of an alternate remedy for closure.

03-30-06: TMW-1 was purged of 30 gallons of water using a disposable bailer and a sample was recovered to determine the concentrations of chloride and total dissolved solids. A water sample was also recovered from a windmill-equipped water well located 1,800 feet to the northwest of the site. The results indicated that the chloride concentration at TMW-1 had decreased significantly from the sample recovered on 9-19-05.

05-10-06: The first of three additional ground water samples were recovered from TMW-1 over a 2-month period. In each case the well was purged of approximately 400 gallons prior to sampling. Chloride concentrations from each sample were generally consistent with the sample recovered on March 30, 2006.

06-12-06: A Corrective Action Plan (CAP) for the proposed pit closure at the Livestock "30" site was submitted to Mr. Glenn Von Goten, with the NMOCD in Santa Fe, by RT Hicks Consultants on behalf of Samson. The CAP recommended that an evapotranspiration (ET) cover be designed and placed over the reserve pit area to control the migration of additional chloride into the ground water. Consideration of a "point-of-use" ground water remediation program was also suggested based on the results of the ongoing ground water sampling program.

06-27-06: With the assistance of the property owner, depth to ground water measurements were taken from the windmill-equipped water well located 1,800 feet to the northwest and a water well used for oil field operations located approximately 1,300 feet to the west. TMW-1 was also gauged and the casing elevations of each of the wells were surveyed in order to determine the local ground water gradient.

07-12-06: The first of three solar-powered pumps were installed in the 2-inch monitoring well (TMW-1) in order to determine if more aggressive water recovery would significantly decrease the chloride concentration in the ground water below the pit. Several problems were encountered during the pumping operations generally associated with the turbidity of the water, possibly related to the completion of the well.

08-22-06: Following the recovery of an additional 5,600 gallons of water, a ground water sample was recovered to determine the concentration of chloride. The results indicate a decrease in chloride concentration of approximately 20% from the March to June, 2006 levels.

08-30-06: A meeting was conducted with Mr. Glenn Von Gotten and Daniel Sanchez at the NMOCD offices in Santa Fe to discuss the June 12, 2006 CAP and results of the ground water purging/sampling feasibility test. The result of the meeting is the submission of this Stage 1&2 Abatement Plan and a decision to proceed with construction of the ET Infiltration Barrier in advance of NMOCD approval of the Abatement Plan..

4.0 Stage 1 Abatement Plan

Site investigation activities were conducted in preparation for the CAP submitted on July 12, 2006 and were sufficient to develop a vadose zone and ground water remedy for the site. A summary of this information and the results of any additional corrective actions are provided below.

4.1 Site Location and Land Use

Plate 1 shows the location of the site relative to the junction of the San Simon road (Co. Rd. 32) and State Highway 176, about 15 miles west of Eunice, New Mexico. Figure 1 is a photograph that depicts the site and the nearby environs with the excavated reserve pit in the background and the caliche pad associated with the gas well is in the foreground.

Plate 2 is a topographic map of the site and the environs, showing the locations of nearby water supply wells. Plate 3 is an aerial photograph at the same scale as the topographic map showing the surrounding area is used primarily for livestock grazing and oil and gas production. Plate 4 is a detailed site map showing the locations of borings and wells disscussed in this report.

4.2 Regional Geology and Hydrogeology

Information from water wells located within a one-mile radius of the site was provided by the State Engineers office in Roswell. Published documents were utilized to determine the regional geology, hydrogeology, and background water quality.

The Livestock "30" site is located in the Grama Ridge geographic area, between the San Simon Swale to the south and the Laguna Valley to the north. All of southern Lea County is part of the Pecos Valley section of the Great Plains physiographic province. Drainage is discontinuous and generally occurs to the southeast, across the Eunice plains toward the Monument Draw. There is no natural surface water located in the vicinity of the site although small stock tanks supplied by water wells are present across the area.

Grama Ridge area is characterized by northwest-southeast trending ridges and valleys with up to fifty feet of topographic relief. Similarly trending playa lakes are generally present along the floor of the inter-ridge valleys. The Samson Livestock "30" reserve pit is located within a ½-mile wide valley; the nearest playa lakes are located approximately 1,000 feet to the southeast and 1,200 feet to the northwest.

Rocks exposed at the surface along the ridges are alluvial deposits and petrocalcic soils of the Tertiary Ogallala formation (see Plate 5). They are covered by Quaternary age eolian deposits in the valleys, which consist of less than 10 feet of brown to reddish brown silt and very fine grain sand. The contact between the Quaternary and Tertiary formations in the reserve pit is shown in Figure 3.

Based on state well records from water wells CP-667, CP-917, CP-866, and CP-916, the Ogallala formation is approximately 125 feet thick at the site. From the base of the Quaternary to approximately 40 feet it consist of caliche and very fine grain sand that is light brown to tan in color. From 40 to 130 feet it consists of red to white fine grain, sub rounded sand with inter-bedded small gravel. The Ogallala unconformably overlies the Triassic red clays. The on-site monitoring well log shows that the vadose zone consists of caliche and fine sand. Appendix B provides the well logs from the Office of the State Engineer for these nearby wells.

Many reports discuss the hydrogeologic characteristics of the Ogallala Aquifer. Most of these studies and reports do not provide information on the area near the Livestock 30 site. However, Masharrafieh and Chudnoff (Numerical Simulation of Ground water Flow for Water Rights in the Lea County Underground Water Basin New Mexico, New Mexico Office of the State Engineer Technical Report 99-1, 1999) provides an estimate of the hydraulic conductivity and other parameters near the site. The area of the Livestock 30 well lies about 14 miles southeast of Monument – about 6 miles southeast of the model boundary. In this general area, the 1999 report suggests a hydraulic conductivity for the underlying aquifer of between 81 and 100 feet/day. Based upon our experience, the lithology of the saturated zone is very similar to that encountered south of Monument. In our opinion, the saturated hydraulic conductivity near the Livestock site is within the range of 50-100 ft/day.

According to the state well records, most of the area water wells encountered fresh water in the Ogallala between 40 and 130 feet, although most of these wells could not be accessed (or located) to verify fluid levels and depths, published information regarding the Ogallala aquifer indicate that the regional ground water gradient is to the southeast. Plate 6 shows the potentiometric surface of the aquifer based upon available regional data. Fresh water can also be produced from the Triassic Santa Rosa formation in the area at approximately 250 to 350 feet.

The chemical quality of the Ogallala ground water is reasonably good. Based on published data and a ground water sample recovered from a well located approximately 1,800 feet northwest of the site, the background water contains less than 1,000 mg/L total dissolved solids (TDS) and chloride concentrations of less than 50 mg/L.

4.4 Site Characteristics and Extent of Impacted Media

4.4.1 Vadose Zone Assessment

The vadose zone soils underlying the reserve pit consist of broken caliche, very fine grain sand and silt. Ground water is approximately 40 feet below the surface (30 feet below the base of the pit).

On May 11, 2005, following the excavation of the reserve pit to a depth of 10 feet, Samson personnel collected soil samples that indicated chloride concentrations from 3,920 to 8,080 mg/kg, with the highest levels located in the center of the excavation. From September 16 to 22, 2005 Ocotillo Environmental collected soil samples from nine hollow-stem auger borings within and surrounding the pit area. The results of these sampling programs identified elevated chloride concentrations (>1,000 mg/kg) in the south and east corners of the pit that extended to the ground water depth. Elevated chloride concentrations were also present in the center and west corner of the pit that extended to a depth of 35 feet. A soil boring installed in the north corner of the pit did not encounter chloride concentrations above 1,000 mg/kg. Plate 4 shows the location of the borings; surface samples were taken in the same locations as soil borings. Note that Plate 4 shows the former reserve pit as well as an outline of excavation associated with the exportation of material from the site.

The results of the soil sampling are summarized in Table 1. In all of the four borings located outside of the pit area (B-6 through B-9) chloride concentrations in soil were less than 250 mg/kg. Twelve of 39 samples showed chloride concentrations less than the 1,000 mg/kg ground water protection limit suggested by highly-conservative simulation modeling conducted by NMOCD as being protective of ground water (see NMOCD Exhibits to the Surface Waste Management Rule Hearing).

Figure 3: Chloride Concentration in Soil at the Livestock Site

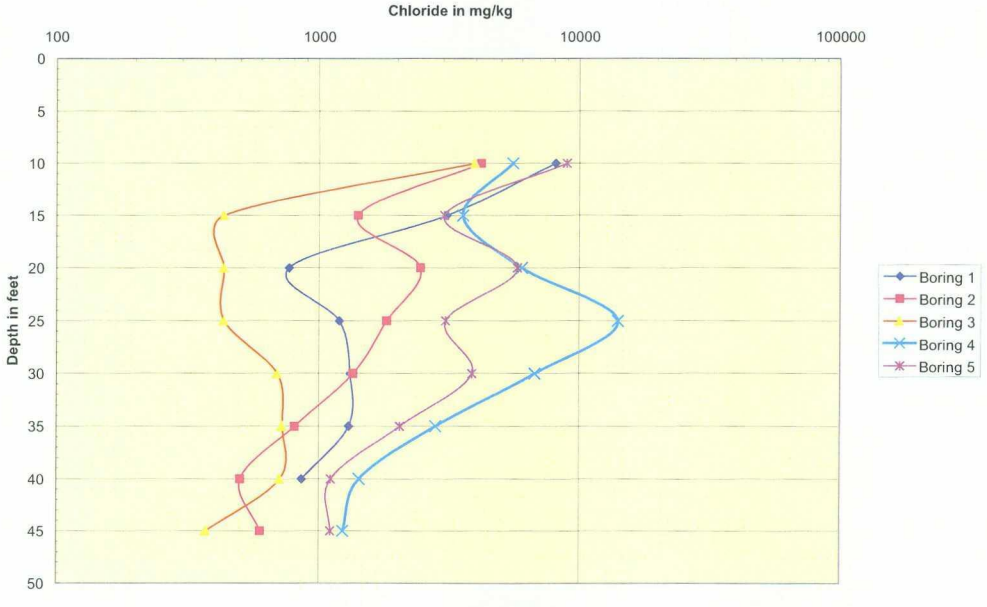
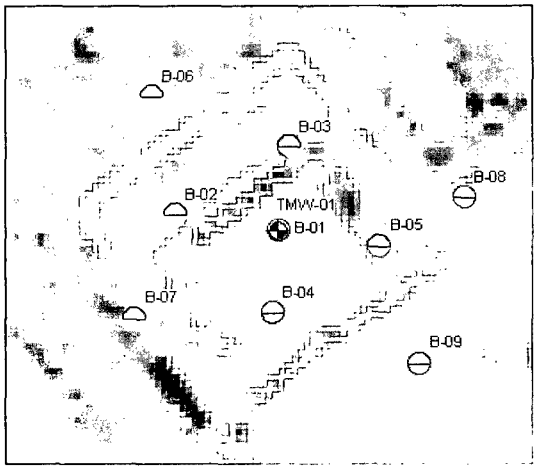


Figure 3 shows the chloride concentrations v. depth for the boreholes within the excavation associated with the former reserve pit. The maximum field chloride concentration of 14,080 mg/kg is from B-4 at a depth of 25 feet bgs. The deepest samples above the capillary fringe (about 35 feet bgs) suggest that chloride did not materially impact the lower vadose zone in the northern portion of the former pit (borings 2 and 3). In the central and southern portion of the former pit, chloride concentrations above the capillary fringe are 1,298 mg/kg (B-1), 2,799 mg/kg (B-4) and 2,031 mg/kg (B-5). The fact that borehole #4 exhibits the highest chloride concentrations may not be surprising, given the fact that this borehole characterizes the area of the former reserve pit where accumulated cuttings would not restrict any loss from a lack of liner integrity. Figure 3 presents two schematic cross sections showing chloride concentrations from north to south and from east to west.



North				South	
B-06	B-03	B-01	B-04	B-09	feet bgs
	3920	8080	5520		10
16	432	3071	3551	224	15
16	432	763	5998	64	20
32	432	1190	14050	240	25
32	688	1312	6718	48	30
	720	1295	2790		35
	704	854	1424		40
	368		1232		45

West				East	
B-07	B-02	B-01	B-05	B-08	feet bgs
	4160	8080	8880		10
112	1400	3071	3007	16	15
80	2431	763	5728	128	20
32	1807	1190	3039	128	25
16	1344	1312	3839	112	30
	800	1295	2031		35
	496	854	1104		40
	592		1100		45

Figure 4: Schematic Cross Section of Chloride Concentrations

As Figure 4 shows, the center of chloride mass resides in boreholes B-01, B-04, B-05 and B-02. This strongly suggests that the inner horseshoe (brine) section of the reserve pit was the source of leakage and chloride.

Laboratory analyses of hydrocarbons from the five samples collected on May 11, 2005 from the bottom of the pit (10 feet bgs), taken at approximately the same location as the borings, did not detect benzene, ethylbenzene, toluene, total xylenes or gasoline-range hydrocarbons. Three of these five samples detected diesel-range organic hydrocarbons at 549 mg/kg (SE Corner), 262 mg/kg (Center), and 70.6 mg/kg (NE Corner). Appendix C provides laboratory reports.

From chloride data we conclude that the maximum vertical extent of the release penetrates the vadose zone to the capillary fringe and probably to ground water. The lateral extent of the subsurface impact is limited to the area of the former pit.

4.4.2 Chloride Flux from the Vadose Zone to Ground Water

RT Hicks Consultants employed all of the site-specific data available in a simplified version of the HYDRUS-1D computer model. This simplified model evaluated the potential of the 2-foot interval that represented the largest residual chloride mass in the vadose zone (25-27 feet below ground) to materially impair ground water quality at the site. The average chloride concentration of this interval is 4,370 mg/kg.

HYDRUS-1D simulates one-dimensional water flow, heat transport, and the movement of solutes involved in consecutive first-order decay reactions in variably-saturated soils. The HYDRUS-1D simulations employ highly conservative input parameters that can materially over-predict the chloride flux to ground water. A detailed explanation of the procedures employed in our evaluation of unsaturated flow using the HYDRUS-1D code may be found in Hendrickx and others (Modeling Study of Produced Water Release Scenarios, API Publication Number 4734, 2005).

The simplified modeling exercise demonstrated the need to implement a vadose zone remedy. More robust modeling described in the Closure Design for Livestock 30 Reserve Pit shows that an infiltration barrier can mitigate the downward transport of constituents of concern.

4.4.3 Ground water Assessment and Point-of-Use Feasibility

A temporary 2-inch monitoring well (TMW-1) was installed in the center of the reserve pit excavation on September 16, 2005. Elevated chloride concentrations were observed in the soil above the ground water (encountered at approximately 39 feet below the surface), but the levels were generally less than what was observed in samples recovered from borings placed in the south and east corners of the excavation. Local ground water gradient, based on a triangulation of TMW-1 and water wells located 1,300 feet to the west and 1,800 feet to the northwest, is very slightly (essentially flat) to the north. This measurement is consistent with the local topography but is inconsistent with the regional ground water flow described in publications and in Plate 6 of this report.

The initial water sample from TMW-1 recovered on September 19, 2005 contained 3,999 mg/L chloride. On March 30, 2006 the monitoring well

was "over-purged" (30 gallons of water) and a sample was recovered that contained 2,240 mg/L chloride and 4,520 mg/L TDS. Because the decrease in chloride concentration was so significant from September 2005 to March 2006 it was necessary to resample the well in order to determine if the change in concentrations was due to natural attenuation or associated with the volume of recovery during the purge operation. On May 10, June 7, and June 27, 2006 ground water samples were recovered from TMW-1 following the removal of approximately 400 gallons of water during each event. The average chloride concentration from the three events was 2,416 mg/L, essentially unchanged from the March 2006 sampling event. This may indicate that the original sample recovered in September 2005 was incorrect.

A "point-of-use" feasibility test was conducted from July 12, to August 22, 2006 in order to determine if more aggressive pumping of the ground water immediately below the pit could be beneficial in decreasing the chloride concentration. A solar-powered pump and surface water line was installed to transfer water from TMW-1 to a 500-bbl fiberglass tank located at the well site tank battery. Although several problems associated with the solar power and well completion was encountered, approximately 5,600 gallons of water was removed by the end of the test. On August 22, 2006 a ground water sample was recovered using a pump in TMW-1 and an additional sample was recovered with a bailer from the total depth of the well. The results indicated that the chloride concentrations have decreased to 1,930 mg/L (1,880 mg/L at total depth) following the more aggressive pumping of the well. Table 2 presents ground water data collected to date at the site.

5.0 Stage 2 Abatement Plan

5.1 Vadose Zone Remedy

The proposed vadose zone remedy is outlined in the attached Closure Design for Livestock 30 Reserve Pit.

5.2 Ground water Remedy

Following the construction of the modified monolithic ET barrier but prior to seeding the surface, a single 4-inch ground water recovery/monitoring well will be installed through the ET barrier, at the approximate location of TMW-1, using a hollow-stem auger. Once completed and properly developed the well will be equipped with a water pump powered by the appropriate solar panels and voltage switching or a portable generator. Ground water from the well will be pumped to the existing 500-bbl fiberglass storage tank associated with the Livestock "30" gas well. It should be noted that the gas well produced water to the fiberglass tank for only a short period of time following the initial stimulation. Currently the water tank is not being used for oil field operations. Appendix D provides the proposed design for the recovery well.

Water collected in the tank will be offered to the Merchant Livestock Company to supplement the water presently being sold from three nearby water wells to area oil and gas operators to be utilized for drilling and treatment fluid. Additionally, after the chloride concentrations decrease to acceptable levels the water may also be used to establish vegetation on other sites in the area, for industrial uses (e.g. water for oil field cementing) and to supply area livestock.

5.3 Soil and Ground water Monitoring

Ground water samples will be recovered from the pumping well initially on a quarterly basis, and later on a semi-annual or annual basis to determine the chloride concentration. Water levels from the nearby windmill, supply well and the on-site recovery well will also be obtained. Due to the nearly flat hydraulic gradient in the area, Hicks Consultants and Samson believe that the chloride-impacted ground water is limited to the area immediately

below the reserve pit. Therefore if chloride concentrations decline soon after the pumping begins, there would be no benefit of additional monitoring wells outside of the pit area. However if the chloride concentrations increase during the first year of monitoring, then a monitoring well program will be proposed to delineate the horizontal extent of the plume beyond the pit. Once the chloride concentrations decrease to below 250 mg/L the pumping and beneficial use of the water mandated by NMOCD approval of this plan will be continued on a voluntary basis at the pleasure of the landowner. However the ground water monitoring will continue for at least two years. As suggested in the Closure Design for Livestock 30 Reserve Pit, the vadose zone beneath the former pit may contribute chloride to the ground water for several years.

After two years of monitoring under non-pumping conditions demonstrate that ground water quality meets the WQCC Standards and the site is re-vegetated, Samson will request closure of the regulatory file. After this two year period and closure of the regulatory file, the well will be controlled by the landowner and used for the purposes that he sees fit.

During the installation of the 4-inch recovery/monitoring well a hollow-stem auger will be used to install at least one soil monitoring device in order to verify that the monolithic ET barrier is operating according to the performance expectations predicted by the model. A brief soil and ground water monitoring report will be prepared and submitted to the NMOCD on an annual basis.

6.0 Quality Assurance / Quality Control

Sampling and analytical procedures shall be performed in accordance with Title 20 NMAC 6.3107.B and Section 903 of the Water Quality Standards for Interstate Streams in New Mexico (20 NMAC 6.1).

Tables

Table 1A

Laboratory Results Summary - Excavation Soil Samples

Results in mg/kg

Sample Location	Pit Center	Pit W/4	Pit N/4	Pit S/4	Pit E/4	B-1	Applicable
Sample Depth (ft)	10	10	10	10	10	40	Reg.
Sample Date	5/11/05	5/11/05	5/11/05	5/11/05	5/11/05	9/16/05	98145.452
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	--	**0.2**
Toluene	<0.005	<0.005	<0.005	<0.005	<0.005	--	**0.347**
Ethyl Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	--	**1.01**
Total Xylenes	<0.015	<0.015	<0.015	<0.015	<0.015	--	**0.167**
GRO (C_6-C_{10})	<10.0	<10.0	<10.0	<10.0	<10.0	--	**200**
DRO (>C_{10}-C_{28})	**262**	<10.0	70.6	<10.0	**549**	--	**200**
Total Alkalinity	--	--	--	--	--	400	--
Chloride	**8,080**	**4,160**	**3920**	**5,520**	**6,880**	864	**1,000**
Carbonate	--	--	--	--	--	211	--
Bicarbonate	--	--	--	--	--	0	--
Sulfate	--	--	--	--	--	77	--
Calcium	--	--	--	--	--	64	--
Magnesium	--	--	--	--	--	12	--
Potassium	--	--	--	--	--	25	--
Sodium	--	--	--	--	--	647	--

Table 1B

Laboratory Results Summary - Soil Samples

Boring Well	Sample Location	Sample Date	Depth (ft)	Cl (mg/kg)
B-1 (TMW-1)	Center of Pit	9/16/2005	15	**3,071**
		9/16/2005	20	768
		9/16/2005	25	**1,120**
		9/16/2005	30	**1,312**
		9/16/2005	35	**1,296**
		9/16/2005	40	864
B-2	West/4 of Pit	9/22/2005	15	**1,400**
		9/22/2005	20	**2,431**
		9/22/2005	25	**1,887**
		9/22/2005	30	**1,344**
		9/22/2005	35	800
		9/22/2005	40	496
		9/22/2005	45	592
B-3	North/4 of Pit	9/20/2005	15	432
		9/20/2005	20	432
		9/20/2005	25	432
		9/20/2005	30	688
		9/20/2005	35	720
		9/20/2005	40	704
		9/20/2005	45	368
B-4	South/4 of Pit	9/22/2005	15	**3,551**
		9/22/2005	20	**5,998**
		9/22/2005	25	**14,080**
		9/22/2005	30	**6,718**
		9/22/2005	35	**2,799**
		9/22/2005	40	**1,424**
		9/22/2005	45	**1,232**
B-5	East/4 of Pit	9/20/2005	15	**3,007**
		9/20/2005	20	**5,726**
		9/20/2005	25	**3,039**
		9/20/2005	30	**3,839**
		9/20/2005	35	**2,031**
		9/20/2005	40	**1,104**
		9/20/2005	45	**1,168**
B-6	20' NW of Pit	9/19/2005	15	16
		9/19/2005	20	16
		9/19/2005	25	32
		9/19/2005	30	32
B-7	20' SW of Pit	9/19/2005	15	112
		9/19/2005	20	80
		9/19/2005	25	32
		9/19/2005	30	16
B-8	20' NE of Pit	9/19/2005	15	16
		9/19/2005	20	128
		9/19/2005	25	128
		9/19/2005	30	112
B-8	20' SE of Pit	9/19/2005	15	224
		9/19/2005	20	64
		9/19/2005	25	240
		9/19/2005	30	48
NMOCD Landfarm Closure Standard				**1,000**

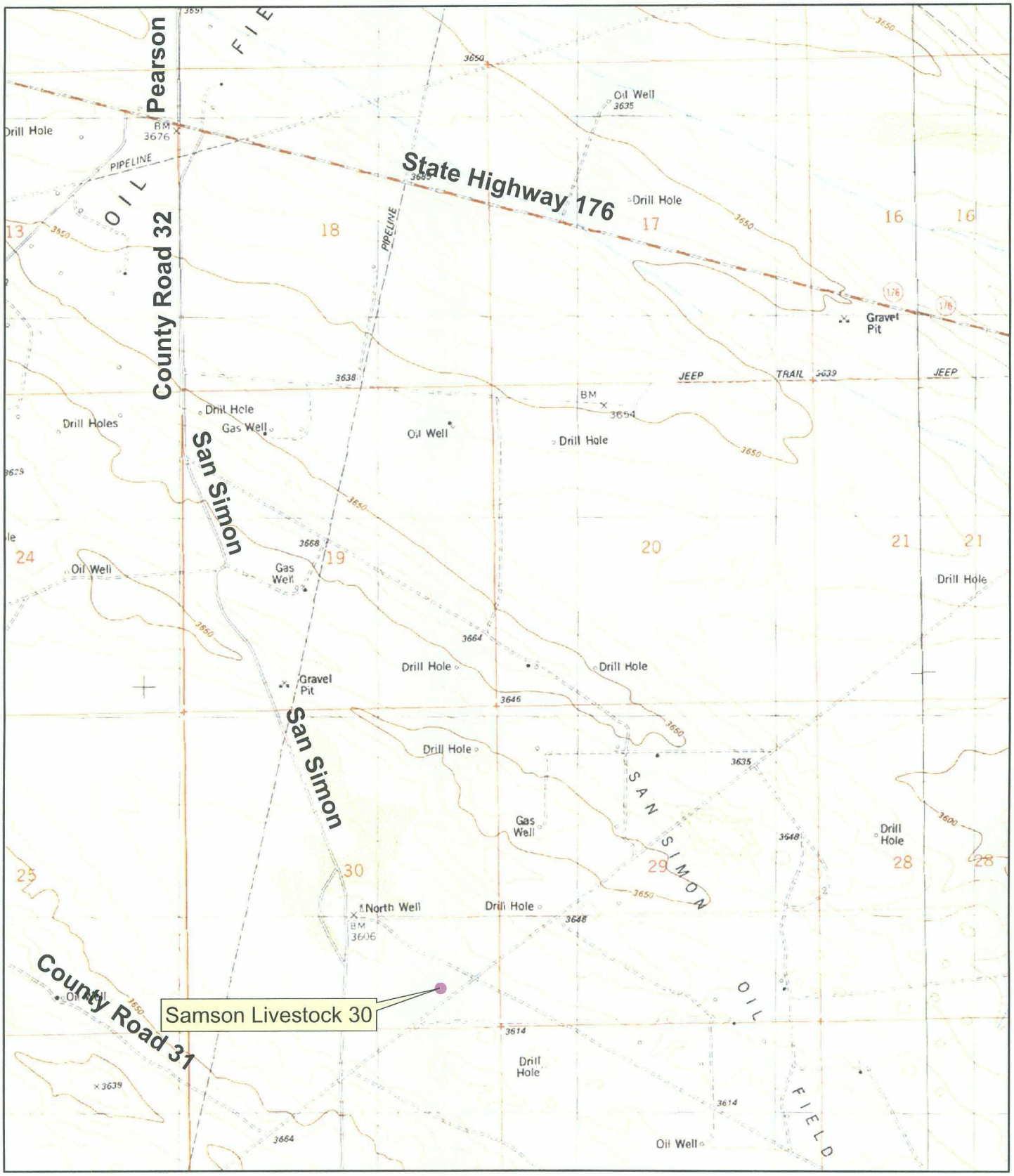
Bold **Text** indicate concentration exceeds Regulatory Standards

Table 2

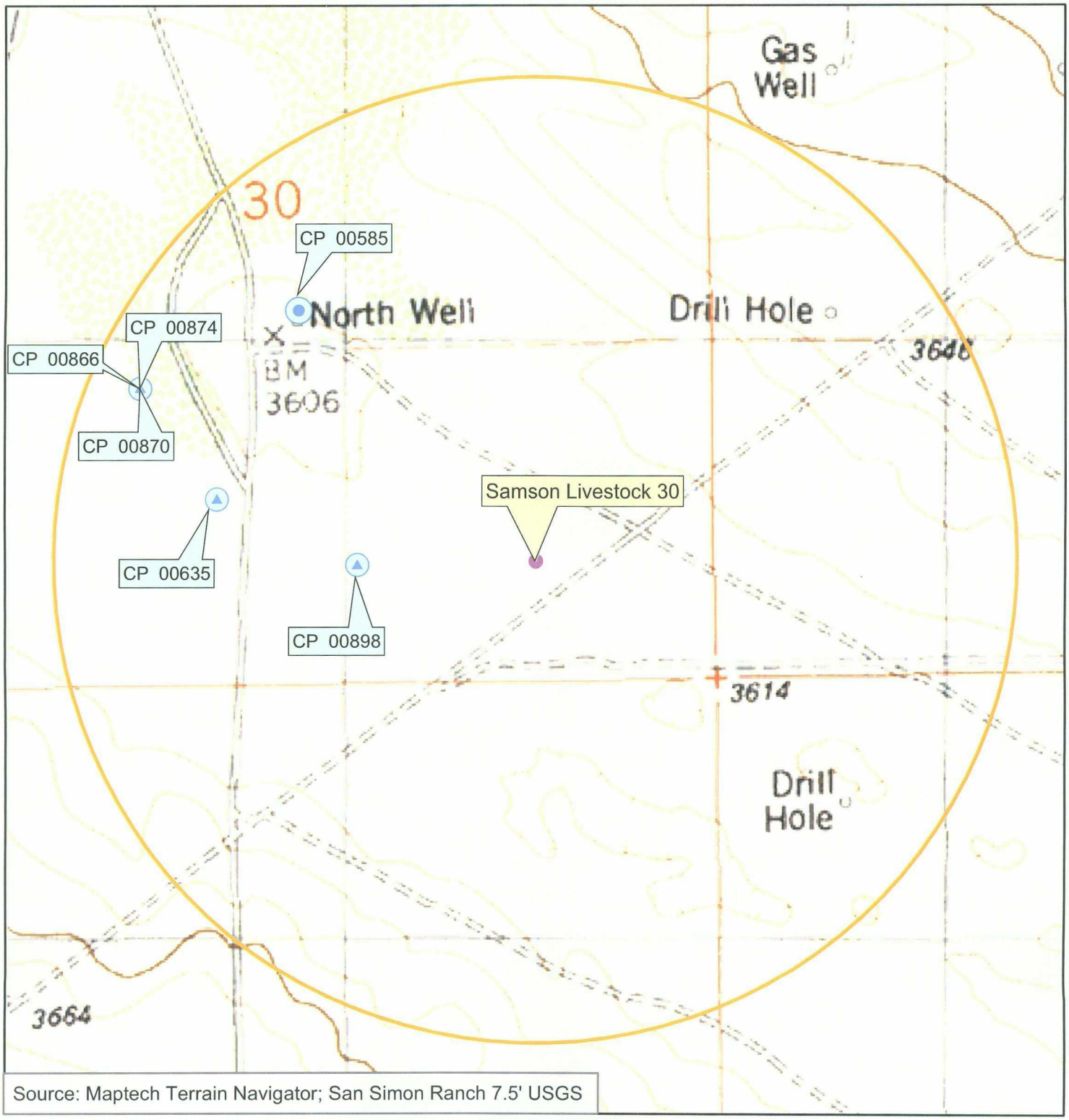
Laboratory Results Summary - Groundwater Samples

Sample Date	DTW	GW Elev.	Purge	Field	Bromide	Chloride	TDS
TMW-1	**(csg)**	**3607.11**	**Vol (gal)**	**Cond.**	**(mg/L)**	**(mg/L)**	**98145.452**
9/19/2005	No Data	--	--	--	--	**3,999**	--
3/30/2006	31.65	3575.46	30	7.49	--	**2,240**	**4,520**
5/10/06	31.74	3575.37	420	7.51	1.5	**2,580**	**3,900**
6/7/06	31.86	3575.25	380	5.93	--	**2,150**	**4,080**
6/27/06	31.83	3575.28	400	7.70	--	**2,520**	**4,160**
8/22/06	31.99	3575.12	5,600	5.52	98145.452	**1,930**	**3,720**
8/22/06	Sample taken from bottom of well with bailer after pump					**1,880**	**3,570**
North Windmill	**Csg Elev.=**	**3609.13**					
3/30/06	--	--	NA	--	--	33.6	644
6/27/06	34.25	3574.88	--	--	--	--	--
Water Well	**Csg Elev.=**	**3615.58**					
6/27/06	40.4	3575.18	--	--	--	--	--
NMWQCC Stan-dards						**250**	**1,000**

Plates



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Location of Samson Livestock 30 relative to Highway 176 and San Simon Rd Samson Livestock "30" Samson Investment Company	Plate 1 June 2006



Source: Maptech Terrain Navigator; San Simon Ranch 7.5' USGS

0 0.5 1 Miles

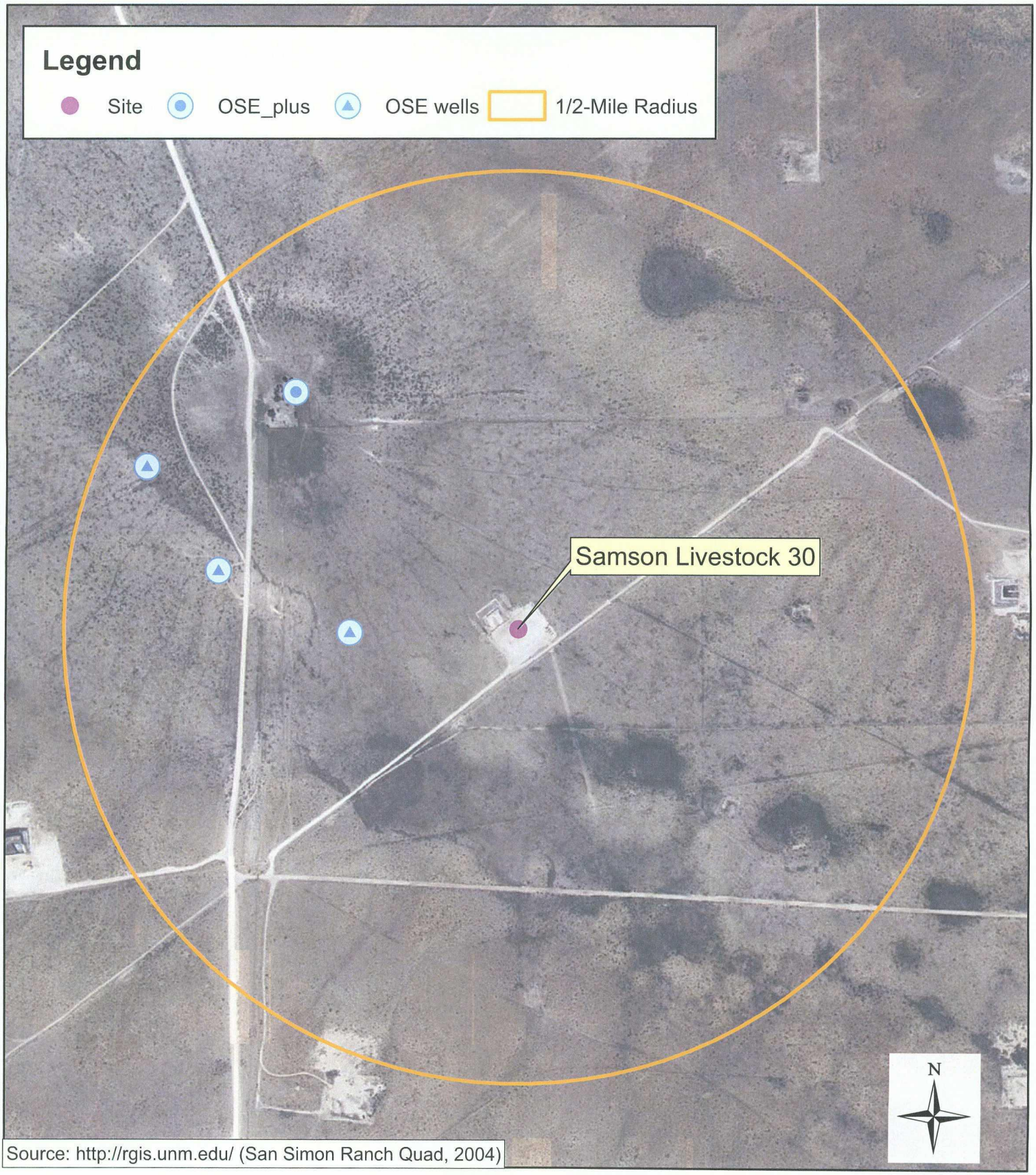
Legend

Site | OSE_plus | OSE wells | 1/2-Mile Radius

N

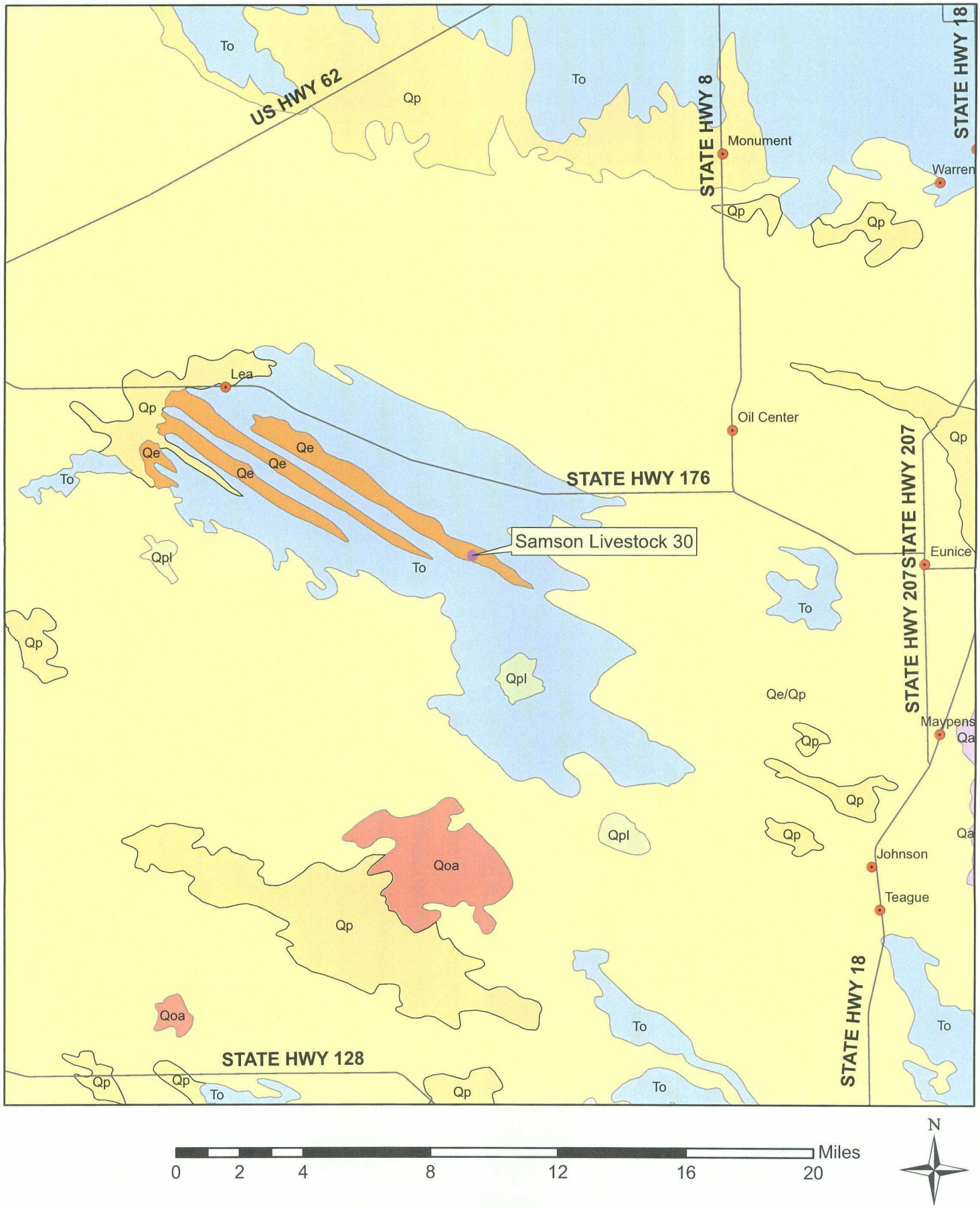
Note: No water wells observed between 1/2-mile and 1-mile

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	7.5' USGS Topo Map showing water wells within a 1/2-mile of the Samson Livestock 30 site	Plate 2
	Samson Livestock "30" Samson Investment Company	June 2006



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	2004 Aerial Photo of Site and environs	Plate 3
	Samson Livestock "30" Samon Investment Company	June 2006

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	2004 Aerial Photo of Site and environs	Plate 4
	Samson Livestock "30" Samon Investment Company	June 2006



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Geologic Map relative to Samson Livestock "30"	Plate 5
	Samson Livestock "30" Samson Investment Company	June 2006

Legend

Geology

Map Unit, Description

- Qa, Quaternary Alluvium
- Qe, Quaternary-Eolian Deposits
- Qe/Qp, Quaternary-Eolian Piedmont Deposits
- Qoa, Quaternary-Older Alluvial Deposits
- Qp, Quaternary-Piedomon Alluvial Deposits
- Qpl, Quaternary-Lacustrine and Playa Deposits
- To, Tertiary-Ogallala Formation

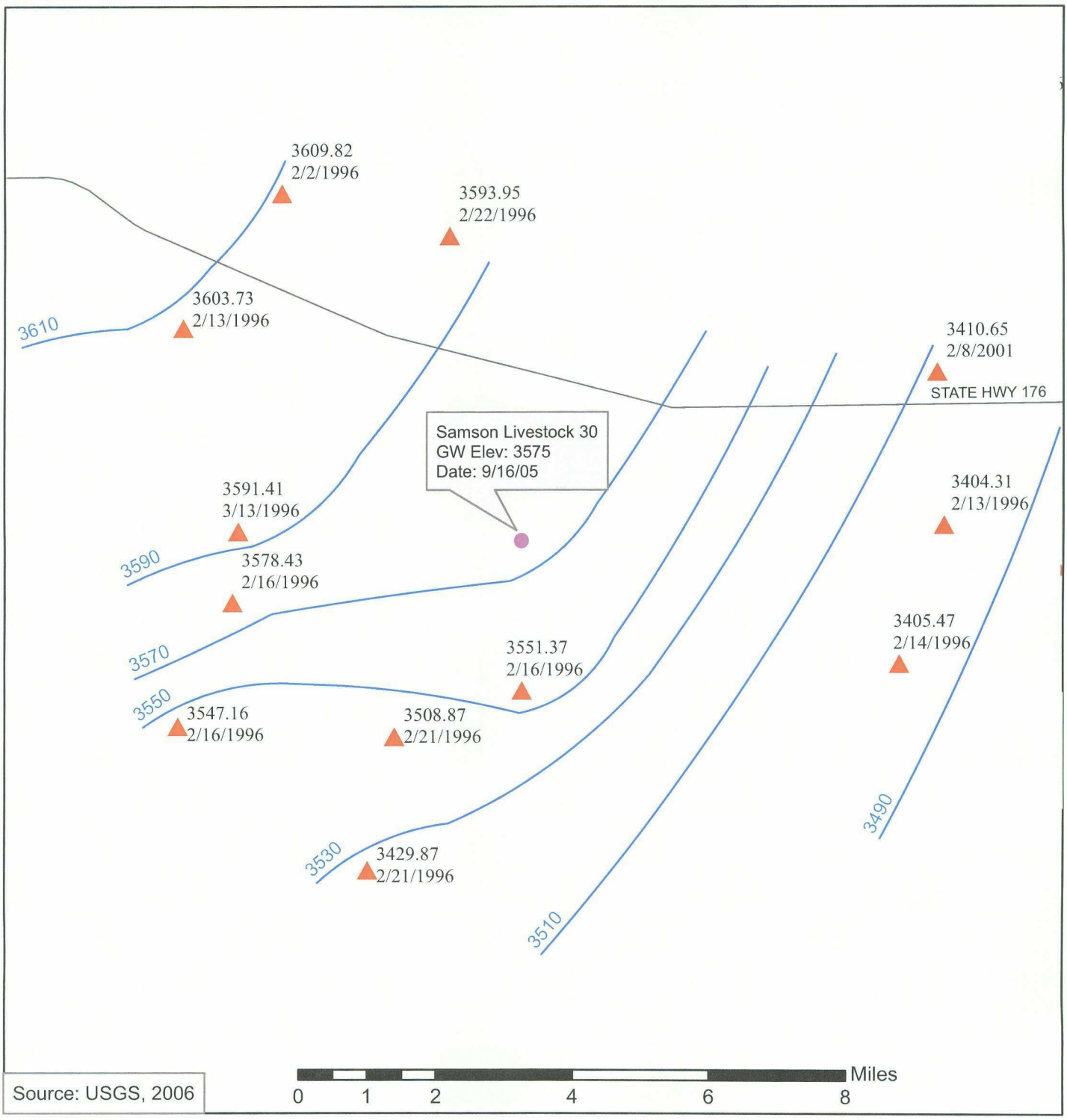
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Geologic Map Legend

Samson Livestock "30"
Samson Investment Company

Plate 5-Legend

June 2006



Legend

Site — Potentiometric Surface (ft) — USGS Gauging Wells

N

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Regional Potentiometric Surface USGS gauging wells (2/1996)	Plate 6
	Samson Livestock "30" Samson Investment Company	June 2006

Appendix A

included on the enclosed CD

TABLE OF CONTENTS

I. **Company Contacts**

Tom Koscelny	Samson Resources	918-591-1386
Jerry Brian	Ocotillo Environmental	505-393-6371

II. **Background**

Ocotillo Environmental was engaged on 7/05/05 to evaluate and conduct a subsurface investigation on the Livestock 30 State #1 Lease, API # 30-025-35200, located in Sec. 30, T21S-R35E in Lea County, NM (see Figures 1 and 2). Subsurface sampling was conducted utilizing a hollow-stem drilling rig to determine the vertical/horizontal extent of chloride impact (see Appendix A). An initial "dig and haul" of impacted soil, in conjunction with sampling and analysis, had already been conducted at the site.

III. **Soils**

The surface soils in the area are of the Simona-Tonuco association and the Midessa series. The Midessa series consists of calcareous, nearly level to gently sloping, well-drained soils that have a loam to clay loam subsoil. These soils formed in wind-deposited and water-deposited, calcareous sediments on plains. Slopes are 0 to 3 percent. The vegetation consists of short and mid grasses and shrubs. The average annual precipitation is 10 to 12 inches.

Typically, the surface layer is dark grayish –brown loam about 4 inches thick. In places it is fine sandy loam. The subsoil is grayish-brown to pale-brown clay loam about 18 inches thick. The substratum, to a depth of 60 inches, is light-gray clay loam that has high lime content. The soul is calcareous throughout.

The soil is used as range and wildlife habitat.

IV. **Groundwater**

Based on the New Mexico State Engineer's Office database, there were not any records found (see Appendix B).

As indicated on the Approved C-144 (see Appendix C) by Mr. Tom Koscelny, personal interview with the landowner indicated that depth to groundwater (dgw) was from 50'-100' below ground surface (bgs).

New Mexico Oil Conservation Division (NMOCD) internal data indicated that the dgw was 40'bgs. Groundwater was actually encountered at 40' bgs.

V. **Work Performed**

On July 8, 2005, Ocotillo Environmental viewed the site. The site had already undergone an excavation / dig and haul procedure to reduce the source of impacted soils. A sampling event had already been conducted under the supervision of Mr. Tom Koscelny. Soil samples had been transported under chain-of-custody to Cardinal Labs at Hobbs, NM for TPH, BTEX, and chloride analysis (see Appendix F). TPH and total Xylenes were below the accepted maximum contaminant level (MCL).

The Koscelny sampling event consisted of five sampling points at 10' bgs, one in each quadrant and one in the center of the excavated area (see Figure 3) Analytical results for chlorides in the Center, NW quadrant, NE quadrant, SW quadrant, and the SE quadrant were 8,080 ppm, 4160 ppm, 3920 ppm, 5520 ppm, and 6880 ppm respectively. All samples exceeded the accepted MCL for chlorides of 250 ppm.

On the 9/15/05, Ocotillo Environmental returned to the site to delineate the vertical and horizontal extent of chloride impact as per the NMOCD approved Delineation Sampling Plan (see Figure 4 and Appendix D).

Nine bore holes (BH) were drilled and split spoon sampling conducted every 5'(see Figure 4). A total of 51 discrete grab samples were retrieved . A Temporary Monitoring Well (TMW) was completed in BH #1. The well was developed and sampled. The samples were properly packaged, preserved, and transported under Chain-of-Custody (see Appendix F) to Cardinal Laboratories of Hobbs, New Mexico for analysis. All samples were analyzed for Chlorides (EPA Method: 4500-Cl B), and Total Ions (EPA Methods: SM3500-Ca-D; 3500-Mg E; SM4500-Cl-B).

BH # 1 (inside the pit area) was sampled at 15', 20', 25', 30', 35', 40', and 50' (TMW) bgs respectively.

Chloride analysis at 15', 20', 25', 30', 35', 40', and 50'(TMW) bgs indicated concentrations at BH #1 were 3071 ppm, 768 ppm, 1121 ppm, 1312 ppm, 1296 ppm, 864 ppm, and 3999 ppm (TMW), respectively (see Figure 5, table, or Appendix E).

BH # 2,3,4, and 5 (inside the pit area) were sampled at 15', 20', 25', 30' , 35', 40', and 45' bgs respectively.

Chloride analysis at 15' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 1400 ppm, 432 ppm, 3551 ppm, and 3007 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 20' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 2431 ppm, 432 ppm, 5998 ppm, and 5726 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 25' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 1887 ppm, 432 ppm, 14080 ppm, and 3039 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 30' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 1344 ppm, 688 ppm, 6718 ppm, and 3839 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 35' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 800 ppm, 720 ppm, 2799 ppm, and 2031 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 40' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 496 ppm, 704 ppm, 1424 ppm, and 1104 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 45' bgs indicated concentrations at BH #2, BH #3, BH #4, BH #5 were 592 ppm, 368 ppm, 1232 ppm, and 1168 ppm respectively (see Figure 5, table, or Appendix E).

BH # 6,7,8,and 9 (outside the pit area) were sampled at 15', 20', 25', and 30' bgs respectively.

Chloride analysis at 15' bgs indicated concentrations at BH #6, BH #7, BH #8, BH #9 were 16 ppm, 112 ppm, 116 ppm, and 224 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 20' bgs indicated concentrations at BH #6, BH #7, BH #8, BH #9 were 16 ppm, 80 ppm, 128 ppm, and 64 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 25' bgs indicated concentrations at BH #6, BH #7, BH #8, BH #9 were 32 ppm, 32 ppm, 128 ppm, and 240 ppm respectively (see Figure 5, table, or Appendix E).

Chloride analysis at 30' bgs indicated concentrations at BH #6, BH #7, BH #8, BH #9 were 32 ppm, 16 ppm, 112 ppm, and 48 ppm respectively (see Figure 5, table, or Appendix E).

DATE	ID		Cl
9/19/2005	BH #1	15' BGS	3071
9/19/2005	BH #1	20' BGS	768
9/19/2005	BH #1	25' BGS	1120
9/19/2005	BH #1	30' BGS	1312
9/19/2005	BH #1	35' BGS	1296
9/19/2005	BH #1	40' BGS	864
9/20/2005	BH #1	50' BGS	3999
9/22//2005	BH #2	15' BGS	1400
9/22//2005	BH #2	20' BGS	2431
9/22//2005	BH #2	25' BGS	1887
9/22//2005	BH #2	30' BGS	1344
9/22//2005	BH #2	35' BGS	800
9/22//2005	BH #2	40' BGS	496
9/22//2005	BH #2	45' BGS	592
9/20/2005	BH #3	15' BGS	432
9/20/2005	BH #3	20' BGS	432
9/20/2005	BH #3	25' BGS	432
9/20/2005	BH #3	30' BGS	688
9/20/2005	BH #3	35' BGS	720
9/20/2005	BH #3	40' BGS	704
9/20/2005	BH #3	45' BGS	368
9/22/2005	BH #4	15' BGS	3551
9/22/2005	BH #4	20' BGS	5998
9/22/2005	BH #4	25' BGS	14080
9/22/2005	BH #4	30' BGS	6718
9/22/2005	BH #4	35' BGS	2799
9/22/2005	BH #4	40' BGS	1424
9/22/2005	BH #4	45' BGS	1232
9/20/2005	BH #5	15' BGS	3007
9/20/2005	BH #5	20' BGS	5726
9/20/2005	BH #5	25' BGS	3039
9/20/2005	BH #5	30' BGS	3839
9/20/2005	BH #5	35' BGS	2031

9/20/2005	BH #5	40' BGS	1104
9/20/2005	BH #5	45' BGS	1168
9/19/2005	BH #6	15' BGS	16
9/19/2005	BH #6	20' BGS	16
9/19/2005	BH #6	25' BGS	32
9/19/2005	BH #6	30' BGS	32
9/19/2005	BH #7	15' BGS	112
9/19/2005	BH #7	20' BGS	80
9/19/2005	BH #7	25' BGS	32
9/19/2005	BH #7	30' BGS	**16**
9/19/2005	BH #8	15' BGS	**16**
9/19/2005	**BH #8**	**20' BGS**	**128**
9/19/2005	BH #8	25' BGS	**128**
9/19/2005	BH #8	30' BGS	**112**
9/19/2005	BH #9	15' BGS	**224**
9/19/2005	BH #9	20' BGS	**64**
9/19/2005	BH #9	25' BGS	**240**
9/19/2005	BH #9	30' BGS	**48**

V. Conclusions

Analytical results of soil samples extracted outside the pit area (BH # 6,7,8, and 9) indicate chloride levels do not exceed the MCL of 250 ppm. This would suggest that a horizontal migration is minimal outside the original pit area.

Analytical results of all soil samples extracted inside the pit area (BH #1,2,3,4, and 5) indicate that the MCL for chlorides has been exceeded from 15' bgs to groundwater, which was encountered at 40' bgs. This would suggest that the migratory pathway for the majority of the chloride release is a downward vertical migration.

The analytical results of the TMW completed at 50'bgs were 3999 ppm. This indicates that a groundwater impact has occurred.

Notification of a groundwater impact was reported by phone to Roger Anderson at the NMOCD office in Santa Fe, NM on the 10/04/05.

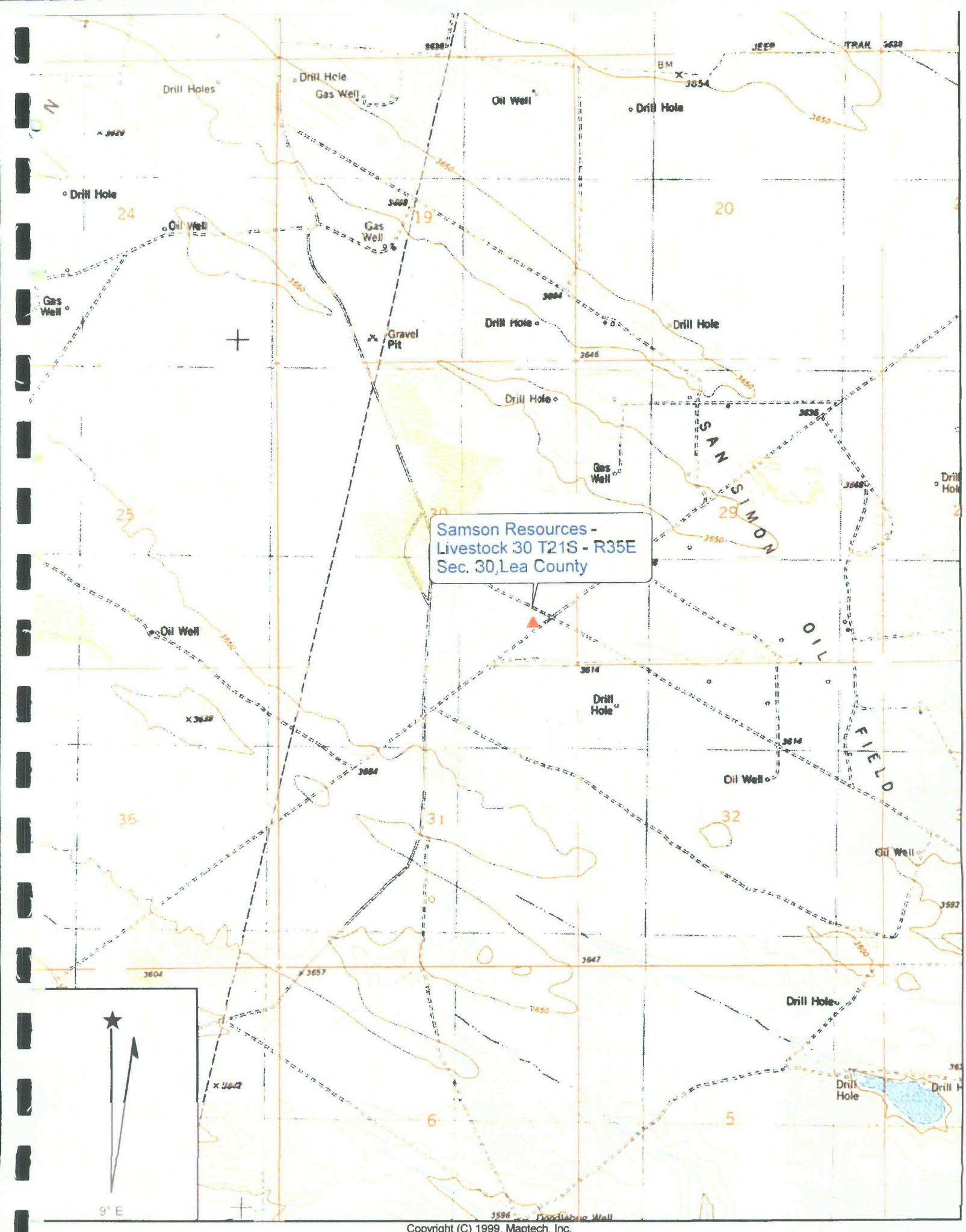
VI. Proposed Action Plan

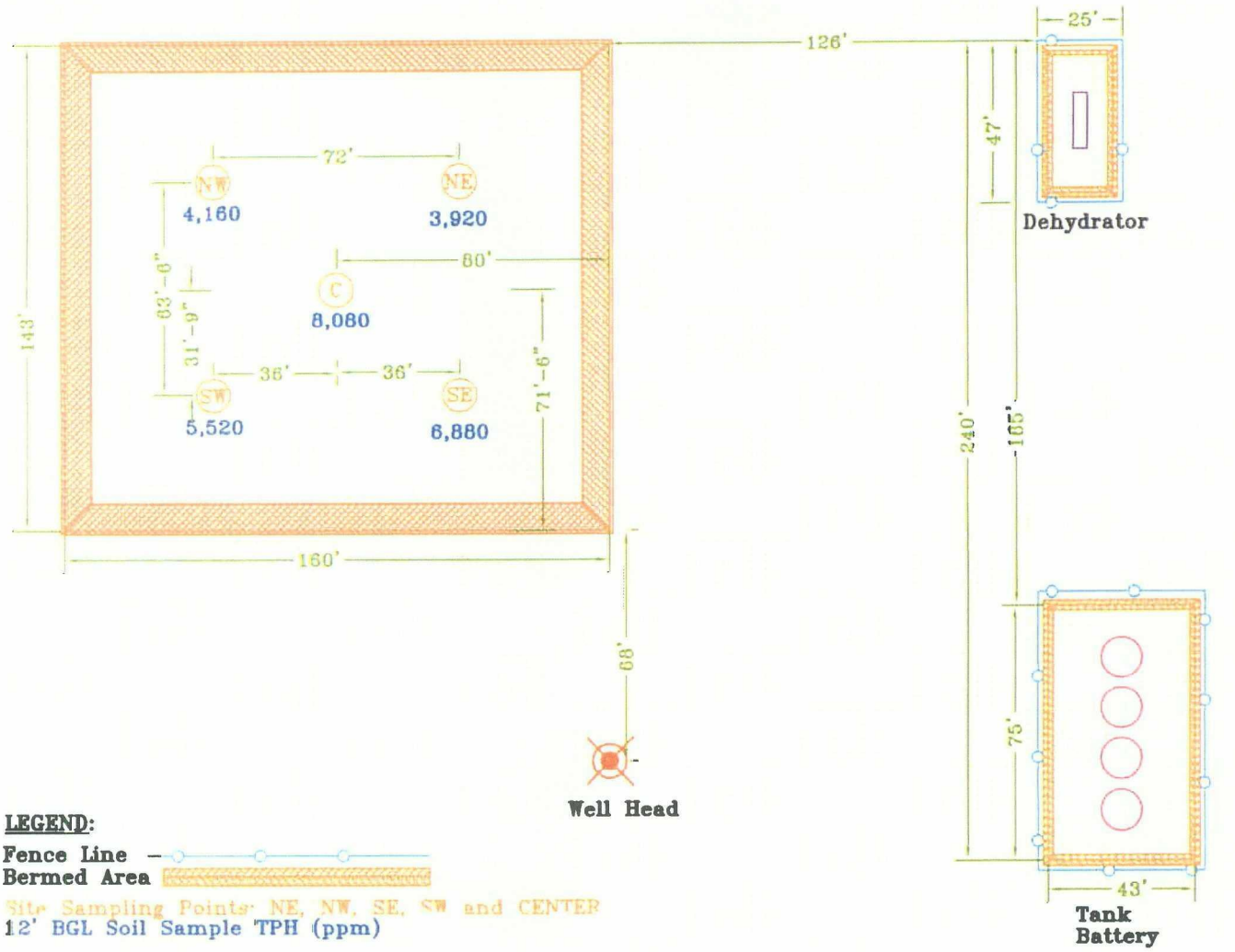
Based upon the results of this site investigation, we propose the following actions for your consideration and approval:

1. remove an additional 20 ft of impacted material from the pit to a depth of 30 ft below ground level (bgl)
2. remove the temporary monitoring well located in the center of the pit area and plug with bentonite
3. cap the excavated bottom with a 20 ml liner
4. backfill to grade with clean soil and return site to natural conditions
5. drill 3 monitoring wells (two down gradient and one upgradient) to determine groundwater flow and gradient
6. begin to establish plume boundaries
7. evaluate data and modify plan accordingly

VII. Figures & Appendices

Figure 1 – Vicinity Map
Figure 2 – Aerial Map
Figure 3 – Koscelny Site Sampling Map
Figure 4 – Proposed Site Delineation Sampling Plan
Figure 5 – Site Map Analytical Results
Appendix A - Site Photos
Appendix B - NM State Engineers Groundwater Records Search
Appendix C - NMOCD Approved C-144
Appendix D - NMOCD Approved Site Delineation Plan
Appendix E - Analytical Results
Appendix F – Chain-of-Custody





LEGEND:

Fence Line –

Bermed Area

Site Sampling Points: NE, NW, SE, SW and CENTER

12' BGL Soil Sample TPH (ppm)

Property: **Livestock 30 State No. 1**
660' FSL and 990' FEL, Section 30
Township 21 South, Range 35 East
Lea County, New Mexico
API No.: 30-025-35200
N 32° 26' 40.4"
W 103° 24' 05.3"
Elevation 3,624'

N

50' 25' 0 50' 100'

Project: SAM-05-001
Location:
Livestock 30 State No. 1
Lea County, New Mexico
Drilling Pit Closure
Site Map - Analytical Results
Sampling Plan
Date: 7/26/05 Scale:1"= 50'

Samson Investment Company

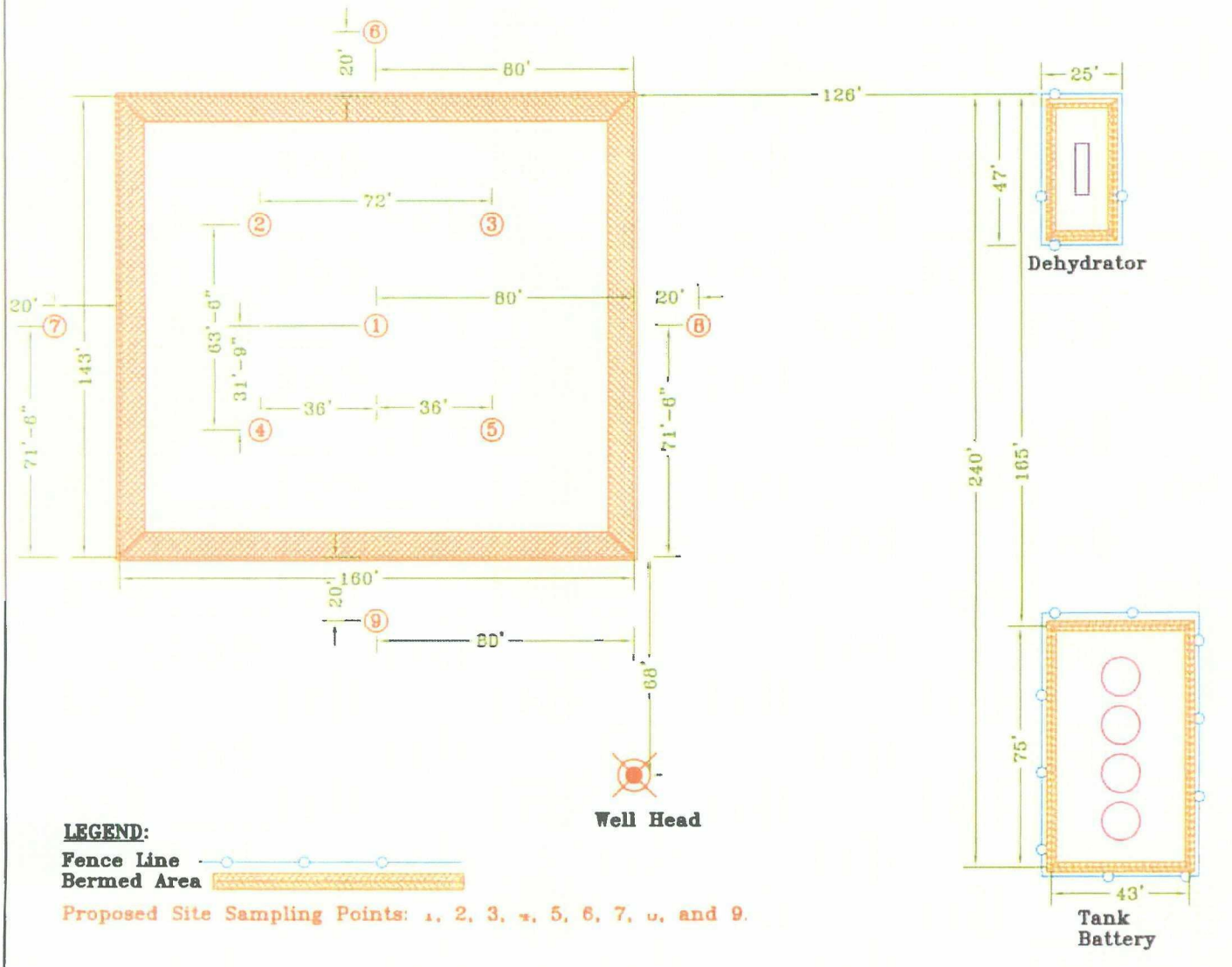
Samson

Samson Plaza
Two West Second Street
Tulsa, OK 74103-3103

P.O. Box 1816

Ocotillo ENVIRONMENTAL

Hobbs, NM 88240



LEGEND:

Fence Line

Bermed Area

Proposed Site Sampling Points: 1, 2, 3, 4, 5, 6, 7, 8, and 9.

Property: **Livestock 30 State No. 1**
660' FSL and 990' FEL, Section 30
Township 21 South, Range 35 East
Lea County, New Mexico
API No.: 30-025-35200
N 32° 26' 40.4"
W 103° 24' 05.3"
Elevation 3,624'

N

50' 25' 0 50' 100'

Project: SAM-05-001
Location:
Livestock 30 State No. 1
Lea County, New Mexico
Drilling Pit Closure
Site Map - Proposed Delineation Sampling Plan
Date: 7/26/05 Scale:1"= 50'

Samson Investment Company

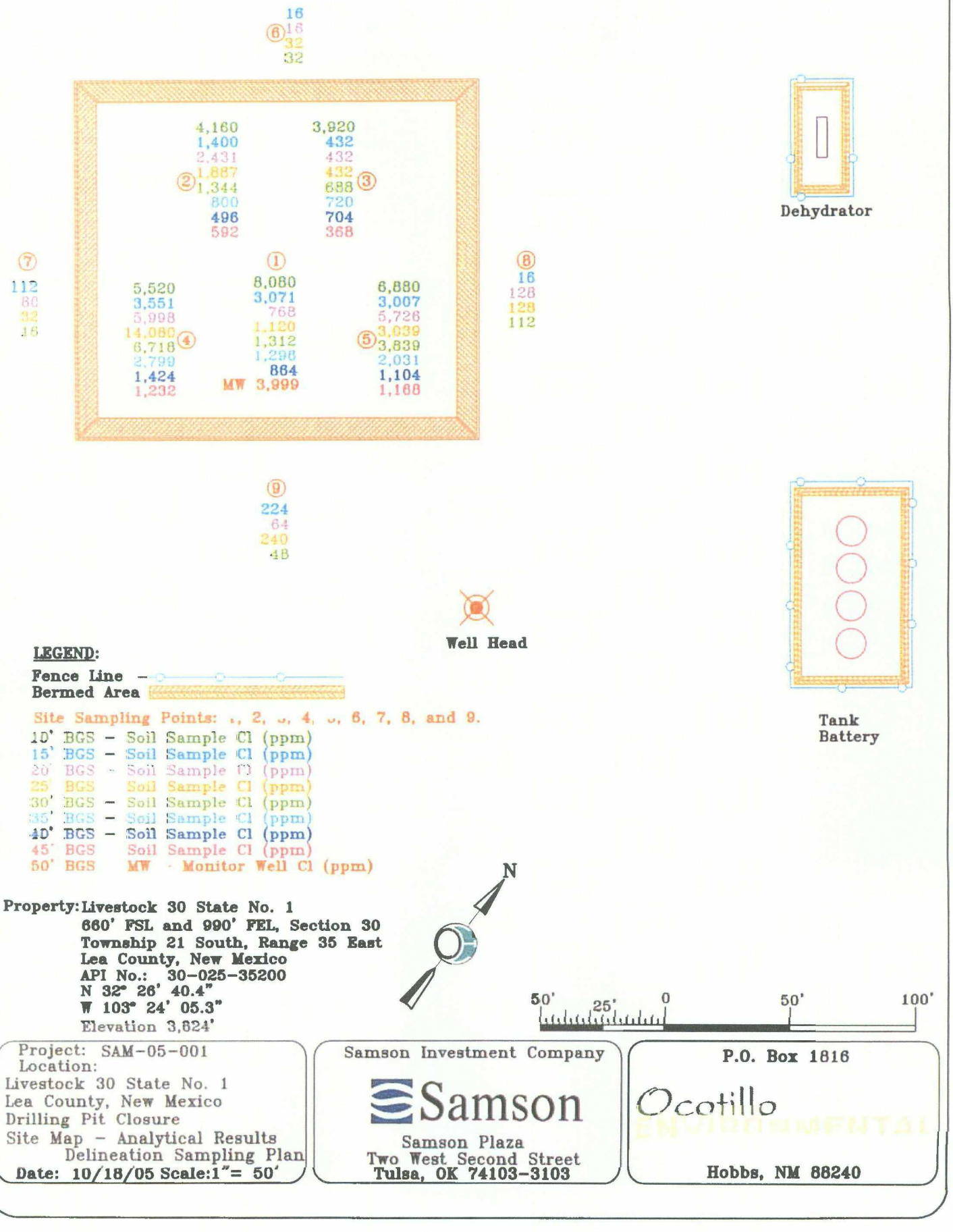
Samson

Samson Plaza
Two West Second Street
Tulsa, OK 74103-3103

P.O. Box 1816

Ocotillo ENVIRONMENTAL

Hobbs, NM 88240



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660' FSL and 990' FEL, Section 30
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Lea County, New Mexico
API No.: 30-025-35200
N 32° 26' 40.4"
W 103° 24' 05.3"
Elevation 3,624'

Project: SAM-05-001
Location:
Livestock 30 State No. 1
Lea County, New Mexico
Drilling Pit Closure
Site Map – Analytical Results
Delineation Sampling Plan
Date: 10/18/05 Scale:1"= 50'

Samson Investment Company
Samson
Samson Plaza
Two West Second Street
Tulsa, OK 74103-3103

P.O. Box 1816
Ocotillo ENVIRONMENTAL
Hobbs, NM 88240

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 21S Range: 35E Sections: 19,20,24,30,31,32

NAD27 X: Y: Zone: Search Radius:

County: LE Basin: L Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | WATERS Menu | Help

WELL / SURFACE DATA REPORT 07/11/2005

DB File Nbr	Use	(acre ft per annum) Diversion	Owner	Well Number	(quarters (quarters Sourc

No Records found, try again

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-144
March 12, 2004

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☒
Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator: SAMSON RESOURCES CO Telephone: 918/591-1386 e-mail address: TKOSCELNY@SAMSON.COM
Address: TWO WEST SECOND ST., TULSA, OK 74103-3103
Facility or well name: Livestock 30-1 API #: _____ U/L or Qtr/Qtr _____ Sec 30 T 21S R35E
County: Lea Latitude 32.444 Longitude -103.40093 NAD: 1927 ☒ 1983 ☐ Surface Owner Federal ☐ State ☐ Private ☒ Indian ☐

Pit	Below-grade tank	
Type: Drilling ☒ Production ☐ Disposal ☐ Workover ☐ Emergency ☐ Lined ☒ Unlined ☐ Liner type: Synthetic ☒ Thickness 20 mil Clay ☐ Volume _____ bbl	Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes ☐ If not, explain why not.	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet 50 feet or more, but less than 100 feet 100 feet or more	(20 points) (10 points) (0 points)
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes No	(20 points) (0 points)
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet 200 feet or more, but less than 1000 feet 1000 feet or more	(20 points) (10 points) 0 points
	Ranking Score (Total Points)	30

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: onsite ☐ offsite ☐ If offsite, name of facility _____. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface _____ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.
Date: 2/16/05
Printed Name/Title TOM KOSCELNY, ENVIRONMENTAL SUPERVISOR Signature _____
Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:
Date: _____
Printed Name/Title _____ Signature _____

WTR @ 32'

Ocotillo
ENVIRONMENTAL
Dirt Work . On-Site Remediation . Soil Testing . Excavation . Consultation

July 28, 2005

Mr. Larry Johnson
Environmental Engineer Specialist
NM Oil Conservation Division
1625 N. French Dr.
Hobbs, NM 88240

Reference:
Site Delineation Plan-Samson Resources
Livestock 30 State # 1
Sec. 30, T21S-R35E
Lea County, NM

Mr. Johnson:

On 5/11/05, a sampling event was conducted at the Livestock 30-State #1 lease. Five samples were taken at the base of the excavation [approx. 12' below ground level (bgl)]. Samples were taken in the NE corner, NW corner, SE corner, SW corner, and center locations. Analytical results for Cl^- were 3920 ppm, 4160 ppm, 6880 ppm, 5520 ppm, and 8080 ppm respectively (see attached "Site Map-Analytical Results").

All samples exceed the accepted MCL's. We propose the following delineation plan to determine the vertical and horizontal extent of possible Cl^- contamination.

1. Drill 5 soil borings within the pit and 4 on the outside perimeter (see attached "Site Map-Proposed Delineation Sampling Plan").
2. Conduct split spoon sampling every 5'.
3. Use field analytical techniques for chloride (HACH Field Test Kit) and evaluate the chloride concentration in each split spoon sample.
4. Evaluate the lithology of the samples.
5. Cease drilling/sampling when chloride concentration is <250ppm (plus 4').
6. Collect 3 representative samples for laboratory analysis.
7. If field chloride sampling suggests that the release reached groundwater, complete a 2-inch PVC glued and coupled monitoring well with 10 feet of well screen within the uppermost portion of the saturated zone.

If you need additional information regarding the delineation plan, please contact me by telephone at (505) 393-6371, or by e-mail at jbrian@valornet.com.

Sincerely,
Jerry R. Brian, REM
Geologist

414 North Turner . Hobbs, New Mexico 88240 . (505) 393-6371 . Fax (505) 393-6374

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/19/05
Reporting Date: 09/19/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30 STATE #1
Project Location: LEA COUNTY, NM

Analysis Date: 09/19/05
Sampling Date: 09/16/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H10200-1	BH #1 15' BGS	3071
H10200-2	BH #1 20' BGS	768
H10200-3	BH #1 25' BGS	1120
H10200-4	BH #1 30' BGS	1312
H10200-5	BH #1 35' BGS	1296
H10200-6	BH #1 40' BGS	864
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		0.2

METHOD: Standard Methods	4500-Cl B

Note: Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

9/19/05
Date

H10200

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/19/05
Reporting Date: 09/20/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30 STATE #1
Project Location: LEA COUNTY, NM

Sampling Date: 09/16/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3/L$)
ANALYSIS DATE:		09/19/05	09/19/05	09/19/05	09/19/05	09/19/05	09/19/05
H10200-6	BH #1 40' BGS	647	64	12	25	3511	400
Quality Control		NR	46	54	5.24	1391	NR
True Value QC		NR	50	50	5.00	1413	NR
% Recovery		NR	92.0	108.0	105.0	98.4	NR
Relative Percent Difference		NR	1.0	1.6	5.6	4.9	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)
ANALYSIS DATE:		09/19/05	09/19/05	09/19/05	09/19/05	09/19/05
H10200-6	BH #1 40' BGS	864	77	211*	0	9.63
Quality Control		1020	48.52	NR	985	7.20
True Value QC		1000	50.00	NR	1000	7.00
% Recovery		102	97.0	NR	98.5	103
Relative Percent Difference		2.0	4.8	NR	0.9	1.1
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1

Note: Analyses performed on a 1:4 aqueous extract.
*OH = 16.3

Amy Hill
Chemist

9/20/05
Date

H10200

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/20/05
Reporting Date: 09/20/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30
Project Location: LEA COUNTY, NM

Analysis Date: 09/20/05
Sampling Date: 09/19/05
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)
H10206-8	BH #1 (T.M.W.) 50' BGS	3999
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		0.2

METHOD: Standard Methods	4500-Cl^-B

Amy Hill
Chemist

9/20/05
Date

H10206a

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/21/05
Reporting Date: 09/22/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30
Project Location: LEA COUNTY, NM

Analysis Date: 09/22/05
Sampling Date: 09/20/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H10213-1	BH #2-15' BGS	1400
H10213-2	BH #2-20' BGS	2431
H10213-3	BH #2-25' BGS	1887
H10213-4	BH #2-30' BGS	1344
H10213-5	BH #2-35' BGS	800
H10213-6	BH #2-40' BGS	496
H10213-7	BH #2-45' BGS	592
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

9/22/05
Date

H10213

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/20/05
Reporting Date: 09/20/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30
Project Location: LEA COUNTY, NM

Analysis Date: 09/20/05
Sampling Date: 09/19/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H10205-1	BH #3-15' BGS	432
H10205-2	BH #3-20' BGS	432
H10205-3	BH #3-25' BGS	432
H10205-4	BH #3-30' BGS	688
H10205-5	BH #3-35' BGS	720
H10205-6	BH #3-40' BGS	704
H10205-7	BH #3-45' BGS	368
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		0.2

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

9/20/05
Date

H10205

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/21/05
Reporting Date: 09/22/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30
Project Location: LEA COUNTY, NM

Analysis Date: 09/22/05
Sampling Date: 09/20/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H10212-1	BH #4-15' BGS	3551
H10212-2	BH #4-20' BGS	5998
H10212-3	BH #4-25' BGS	14080
H10212-4	BH #4-30' BGS	6718
H10212-5	BH #4-35' BGS	2799
H10212-6	BH #4-40' BGS	1424
H10212-7	BH #4-45' BGS	1232
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

9/22/05
Date

CARDINAL LABORATORIES

PHONE (325) 673-7001 · 2111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E. MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/20/05
Reporting Date: 09/20/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30
Project Location: LEA COUNTY, NM

Analysis Date: 09/20/05
Sampling Date: 09/19/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H10206-1	BH #5-15' BGS	3007
H10206-2	BH #5-20' BGS	5726
H10206-3	BH #5-25' BGS	3039
H10206-4	BH #5-30' BGS	3839
H10206-5	BH #5-35' BGS	2031
H10206-6	BH #5-40' BGS	1104
H10206-7	BH #5-45' BGS	1168
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		0.2

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

9/20/05
Date

H10206

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: J. BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 09/19/05
Reporting Date: 09/19/05
Project Number: SAM-05-001
Project Name: LIVESTOCK 30 STATE #1
Project Location: LEA COUNTY, NM

Analysis Date: 09/19/05
Sampling Date: 09/16-09/15/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H10201-1	BH #6-15' BGS	16
H10201-2	BH #6-20' BGS	16
H10201-3	BH #6-25' BGS	32
H10201-4	BH #6-30' BGS	32
H10201-5	BH #7-15' BGS	112
H10201-6	BH #7-20' BGS	80
H10201-7	BH #7-25' BGS	32
H10201-8	BH #7-30' BGS	16
H10201-9	BH #8-15' BGS	16
H10201-10	BH #8-20' BGS	128
H10201-11	BH #8-25' BGS	128
H10201-12	BH #8-30' BGS	112
H10201-13	BH #9-15' BGS	224
H10201-14	BH #9-20' BGS	64
H10201-15	BH #9-25' BGS	240
H10201-16	BH #9-30' BGS	48
Quality Control		1020
True Value QC		1000
% Recovery		102
Relative Percent Difference		0.2

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

9/19/05
Date

H10201

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

RECEIVED
Environmental & Safety Services
MAY 2 0 2005

ANALYTICAL RESULTS FOR
SAMSON
ATTN: TOM KOSCELNY
TWO WEST SECOND ST.
TULSA, OK 74103-3103
FAX TO: (918) 591-7386

Receiving Date: 05/11/05
Reporting Date: 05/13/05
Project Number: NOT GIVEN
Project Name: NEW MEXICO PIT SAMPLING
Project Location: NOT GIVEN

Sampling Date: 05/11/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE		05/11/05	05/11/05	05/12/05
H9786-1	NE CORNER PQ OSUDO #2	<10.0	15.1	1600
H9786-2	NW CORNER PQ OSUDO #2	<10.0	238	1380
H9786-3	SE CORNER PQ OSUDO #2	<10.0	238	176
H9786-4	SW CORNER PQ OSUDO #2	<10.0	529	144
H9786-5	CENTER PQ OSUDO #2	<10.0	262	12400
H9786-6	NE CORNER LIVESTOCK	<10.0	70.6	3920
H9786-7	NW CORNER LIVESTOCK	<10.0	<10.0	4160
H9786-8	SE CORNER LIVESTOCK	<10.0	549	6880
H9786-9	SW CORNER LIVESTOCK	<10.0	<10.0	5520
H9786-10	CENTER LIVESTOCK	<10.0	262	8080
Quality Control		738	792	960
True Value QC		800	800	1000
% Recovery		92.2	99.0	96.0
Relative Percent Difference		0.7	3.2	1.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl: Std. Methods 4500-Cl B
*Analyses performed on 1:4 w:v aqueous extracts.

Chemist

5/13/05
Date

H9786A.XLS

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAMSON
ATTN: TOM KOSCELNY
TWO WEST SECOND ST.
TULSA, OK 74103-3103
FAX TO: (918) 591-7386

Receiving Date: 05/11/05
Reporting Date: 05/13/05
Project Number: NOT GIVEN
Project Name: NEW MEXICO PIT SAMPLING
Project Location: NOT GIVEN

Sampling Date: 05/11/05
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NO.	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		05/11/05	05/11/05	05/11/05	05/11/05
H9786-1	NE CORNER PQ OSUDO #2	<0.005	<0.005	<0.005	<0.015
H9786-2	NW CORNER PQ OSUDO #2	<0.005	<0.005	<0.005	<0.015
H9786-3	SE CORNER PQ OSUDO #2	<0.005	<0.005	<0.005	<0.015
H9786-4	SW CORNER PQ OSUDO #2	<0.005	<0.005	<0.005	<0.015
H9786-5	CENTER PQ OSUDO #2	0.026	0.528	0.128	0.889
H9786-6	NE CORNER LIVESTOCK	<0.005	<0.005	<0.005	<0.015
H9786-7	NW CORNER LIVESTOCK	<0.005	<0.005	<0.005	<0.015
H9786-8	SE CORNER LIVESTOCK	<0.005	<0.005	<0.005	<0.015
H9786-9	SW CORNER LIVESTOCK	<0.005	<0.005	<0.005	<0.015
H9786-10	CENTER LIVESTOCK	<0.005	<0.005	<0.005	<0.015
Quality Control		0.090	0.087	0.094	0.276
True Value QC		0.100	0.100	0.087	0.300
% Recovery		89.7	87.2	87.2	92.1
Relative Percent Difference		2.7	<0.1	3.0	0.7

METHOD: EPA SW-846 8260

Chemist

5/13/05
Date

Appendix B

Ocotillo ENVIRONMENTAL

414 N. Turner Hobbs, NM 88240

FIELD BC :HOLE LOG

BOREHOLE NO: BH - #1

TOTAL DEPTH: 50' BGS

PROJECT INFORMATION

PROJECT: SAMSON RESOURCES

SITE LOCATION: LIVESTOCK 30

JOB NO: SAM-05-001

LOGGED BY: J BRIAN

PROJECT MANAGER: J BRIAN

DATES DRILLED: 9/19/05

DRILLING INFORMATION

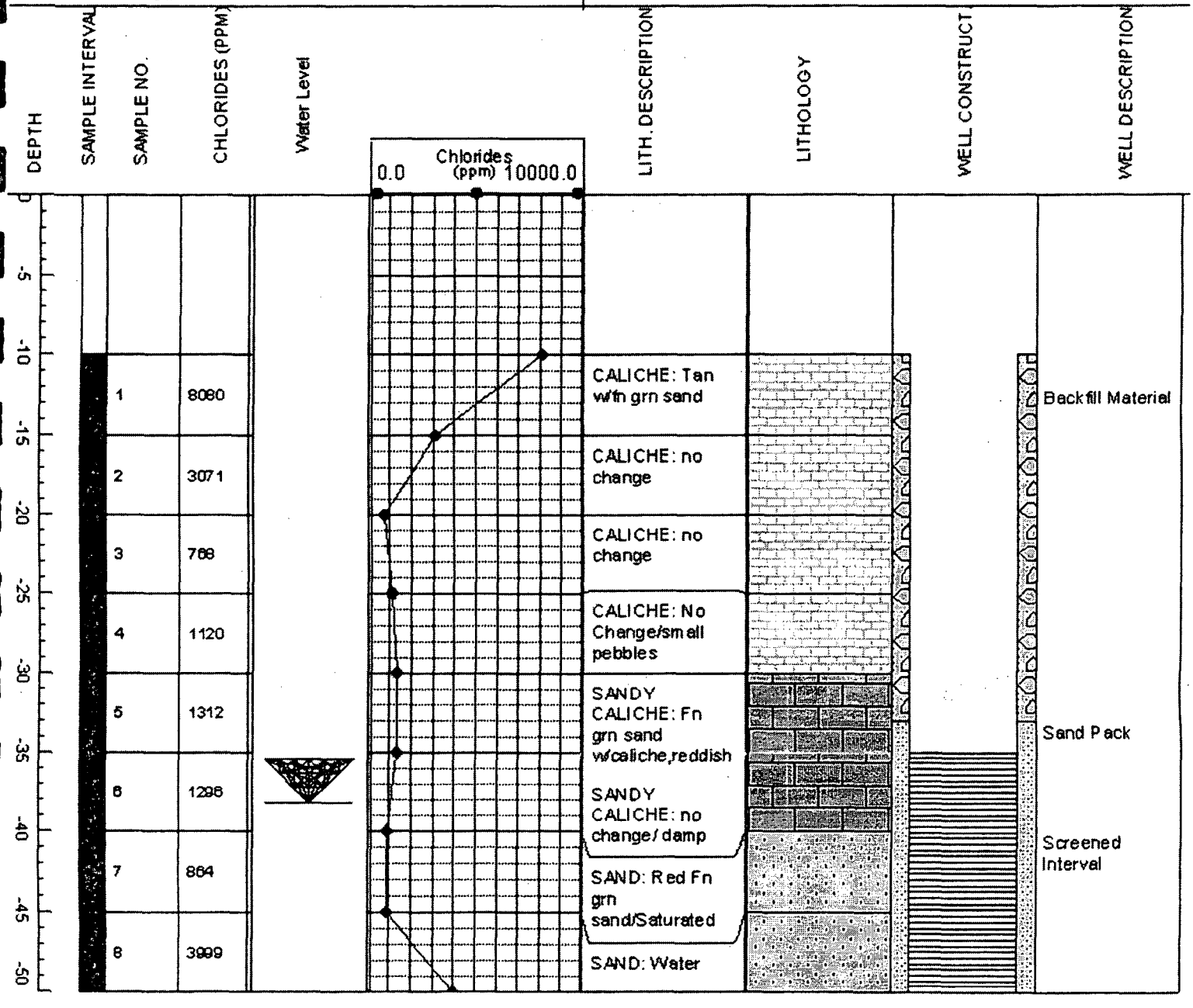
DRILLING CO: ECO/ENVIRO DRILLING

DRILLER: ROY TAYLOR

RIG TYPE: MOBILE 51

METHOD OF DRILLING: HOLLOW STEM AUGER

SAMPLING METHODS: SPLIT SPOON



*** Chloride value at -45' bgs is an arbitrary number,,,,,(No sample was taken)

Total Depth = 50' BGS

OCOTILLO ENVIRONMENTAL
FAX 505-393-6374
OFFICE 505-393-6371

FACSIMILE TRANSMITTAL SHEET

TO: Tom Kosceluy	FROM: Q Brim
COMPANY: Samson Resources	DATE: 12/9/05
FAX NUMBER: 918-591-7386	TOTAL NO. OF PAGES INCLUDING COVER: 3
PHONE NUMBER: 918-591-1386	SENDER'S REFERENCE NUMBER:
RE: St. BD #4	YOUR REFERENCE NUMBER:

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Have a good weekend!

Scott, I look forward to your visit!

Thanks,

QB

P.O. BOX 1816
HOBBS, NM 88240

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: JERRY BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 12/05/06
Reporting Date: 12/06/05
Project Owner: SAMSON RESOURCES
Project Name: STATE BD#4
Project Location: LEA COUNTY

Sampling Date: 12/02/05
Sample Type: SOIL
Sample Condition: COOL AND INTACT
Sample Received By: NF
Analyzed By: HM

LAB NUMBER SAMPLE ID	Na (mg/Kg)	Ca (mg/Kg)	Mg (mg/Kg)	K (mg/Kg)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3$/Kg)
ANALYSIS DATE:	12/06/05	12/06/05	12/06/05	12/06/05	12/06/05	12/06/05
H10476-1 BC-16' BGS	2928	128	78	136.0	16680	208
Quality Control	NR	48	58	2.84	1424	NR
True Value QC	NR	50	50	3.00	1413	NR
% Recovery	NR	96.0	116.0	95.0	101	NR
Relative Percent Difference	NR	16.8	24.6	3.3	2.3	NR
METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

	Cl^- (mg/Kg)	SO_4 (mg/Kg)	CO_3 (mg/Kg)	HCO_3 (mg/Kg)	pH (s.u.)
ANALYSIS DATE:	12/06/05	12/06/05	12/06/05	12/06/05	12/06/05
H10476-1 BC-16' BGS	4958	943	0	254	8.04
Quality Control	1000	33.84	NR	988	7.05
True Value QC	1000	30.00	NR	1000	7.00
% Recovery	100	113	NR	99	101
Relative Percent Difference	0.0	17.8	NR	5	1.0
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1

Chemist

12-06-05
Date

H10476

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
OCOTILLO ENVIRONMENTAL
ATTN: JERRY BRIAN
414 N. TURNER
HOBBS, NM 88240
FAX TO: (505) 393-6374

Receiving Date: 12/07/06
Reporting Date: 12/08/05
Project Owner: SAMSON RESOURCES
Project Name: STATE BD#4
Project Location: LEA COUNTY, NM

Sampling Date: 12/02/05
Sample Type: SOIL
Sample Condition: COOL AND INTACT
Sample Received By: NF
Analyzed By: AH

LAB NUMBER SAMPLE ID	Na (mg/Kg)	Ca (mg/Kg)	Mg (mg/Kg)	K (mg/Kg)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3$/Kg)
ANALYSIS DATE:	12/08/05	12/08/05	12/08/05	12/08/05	12/08/05	12/08/05
H10481-1 BS #2-28'BGS	2928	705	467	70	5690	96
Quality Control	NR	48	58	5.35	1412	NR
True Value QC	NR	50	50	5.00	1413	NR
% Recovery	NR	96.0	116	107	99.9	NR
Relative Percent Difference	NR	0.0	0.0	2.2	0.8	NR
METHODS:		SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER SAMPLE ID	Cl^- (mg/Kg)	SO_4 (mg/Kg)	CO_3 (mg/Kg)	HCO_3 (mg/Kg)	pH (s.u.)
ANALYSIS DATE:	12/08/05	12/08/05	12/08/05	12/08/05	12/08/05
H10481-1 BS #2-28'BGS	6958	298	76	40	7.60
Quality Control	950	49.27	NR	964	7.03
True Value QC	1000	50.00	NR	1000	7.00
% Recovery	95.0	98.5	NR	96.4	100
Relative Percent Difference	7.0	0.7	NR	2.4	0.1
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

12-09-05
Date

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FILE NUMBER 106

Section 1. GENERAL INFORMATION

(A) Owner of well Pogo Producing Co. Owner's Well No. State C # 3

Street or Post Office Address P.O. Box 10340

City and State Midland, Texas 79704

Well was drilled under Permit No. CP-667 and is located in the:

1930' FSL, 1830' FWL

a. ____ ¼ SW ¼ NE ¼ SW ¼ of Section 20 Township 21S Range 35E N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____

Subdivision, recorded in Lea County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Abbott Bros. Drilling License No. WD-46

Address P.O. Box 637, Hobbs, New Mexico 88240

Drilling Began 9/25/84 Completed 9/25/84 Type tools ____ Size of hole 8½ in.

Elevation of land surface or ____ at well is ____ ft. Total depth of well 85 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 0 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
			DRY HOLE	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
NONE-DRY HOLE								

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor Abbott Bros. Drilling

Address P.O. Box 637, Hobbs, New Mexico 88240

Plugging Method Filled with ruble, Cement at top.

Date Well Plugged 9/25/84

Plugging approved by:

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received September 28, 1984

Quad ____ FWL ____ FSL ____

File No. CP-667 Use OWD Location No. 21.35.20.32321

21.35.20.32321

Appendix C

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	3	3	Surface soil
3	30	27	Caliche
30	40	10	Sand-loose
40	68	18	Sand
68	75	7	Sandy clay
75	85	10	Red clay
			DRY HOLE

Section 7. REMARKS AND ADDITIONAL INFORMATION

STATE ENGINEER
ROSWELL, NM
SEP 20 9 38 AM '84

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Murrell Abbott N.B.
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All questions, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well MERCHANTS LIVESTOCK Owner's Well No. _____

Street or Post Office Address c/o Glenn's Water Well Service

City and State Box 692 Tatum, NM 88267

Well was drilled under Permit No. CP- 917 and is located in the:

a. _____ ¼ SW ¼ NE ¼ SW ¼ of Section 30 Township 21-S. Range 35-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD-421

Address P.O. Box 692 Tatum, NM 88267

Drilling Began 11/10/03 Completed 11/10/03 Type tools rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 146 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 40 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
62	138	76	Sand	100

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	.188	PE	1	146	146	none	30	146

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY 28 7671

Date Received 11-20-03

Quad _____ FWL _____ FSL _____

File No. CP-917 Use Stock Location No. 21.35.30.323

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	3	3	soil
3	11	8	white clay
11	18	7	calche
18	22	4	red sand
22	62	40	white clay
62	138	76	red sand
138	146	8	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

FIELD ENGR. LOG

Section 1. GENERAL INFORMATION

(A) Owner of well Merchant Livestock Company Owner's Well No. _____

Street or Post Office Address Box 1105

City and State Eunice, New ~~Mexico~~ Mexico 88231

Well was drilled under Permit No. CP-635 and is located in the:

a. _____ ¼ SE ¼ SW ¼ _____ ¼ of Section 30 Township 21-S Range 35-E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor W. L. Van Noy License No. WD-208

Address P. O. Box 74 Oil Center, New Mex. 88266

Drilling Began April 26, 1981 Completed April 30, 1981 Type tools ASpudder Size of hole 10 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 60 ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well 40 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
40	60	20	water sand	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
7	welded		0	60	60	none	40	60

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received May 8, 1981

Quad _____ FWL _____ FSL _____

File No. CP-635 Use DOM & STK Location No. 21.35.30.34

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	top soil
5	15	10	caliche
15	40	25	brown sand
40	60	20	water sand.

Section 7. REMARKS AND ADDITIONAL INFORMATION

'81 MAY 8 AM 8 30
STATE ENGINEER OFFICE
ROSWELL, N.M.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the abov described hole.

W. L. Von May
Driller

INSTRUCTIONS: Th[illegible]rm should be executed in triplicate, preferably typewritten, and submitted to the appropriate district offic of the State Engine[illegible] section. [illegible]cept Section 5, shall be answered as compl[illegible] and ac[illegible]dy as possible when any well drilled, repaired or deep[illegible]ned. When this form is used as a plugging record, only Section [illegible](a) and Se[illegible]on 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

T# 131740

Section 1. GENERAL INFORMATION

(A) Owner of well Merchant Livestock Co. Owner's Well No. _____

Street or Post Office Address c/o Glenn's Water Well Service

City and State Box 692 Tatum, NM 88267

Well was drilled under Permit No. CP-866 and is located in the:

a. NE ¼ NW ¼ NE ¼ SE ¼ SW ¼ of Section 30 Township 21-S. Range 35-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD 421

Address Box 692 Tatum, NM 88267

Drilling Began September 24 97 Completed 9/24/97 Type tools rotary Size of hole 7 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 140 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 42 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
60	127	67	Red sand	100

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
8 5/8	.188	PE	1	8	8			
6 5/8	.188	PE	1	114	114	none	38	114

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY 21.35.30.34223

Date Received 10/02/97

Quad _____ FWL _____ FSL _____

File No. CP-866 Use Stock Location No. 21.35.30.34223

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	soil
2	12	10	clay (white)
12	25	13	sandy caleche
25	60	35	white clay
60	127	67	red sand
127	140	13	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All ns, except Section 5, shall be answered as completely and accurate possible when any well is drilled, repaired or deepene n this m is used as a plugging record, only Section 1 nd Sectio d be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Merchants Livestock Owner's Well No. _____

Street or Post Office Address c/o Glenn's Water Well Box 692

City and State Tatum, New Mexico 88267

Well was drilled under Permit No. CP-916 and is located in the:

a. _____ ¼ NW ¼ SW¼ SE ¼ of Section 30 Township 21-S. Range 35-E. N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Glenn's Water Well Service, Inc. License No. WD-421

Address P.O. Box 692 Tatum, New Mexico 88267

Drilling Began 10/18/03 Completed 10/18/03 Type tools rotary Size of hole 9 7/8 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 110 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 42 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
42	98	56	sand	100

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	.188	PE	1	110	110	none	34	110

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY 286121

Date Received 10-24-03

Quad _____ FWL _____ FSL _____

File No. CP-916 Use Stock Location No. 21-35.30.431

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	soil
2	14	12	white clay
14	49	35	sandy caleche
49	50	1	hard rock
50	53	3	void
53	98	45	red sand and rock ledges
98	110	12	red clay

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Corky Gibson
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Randy Hicks

R.T. Hicks Consultants Ltd.

901 Rio Grande Blvd, NW Ste., F-142

Albuquerque, NM 87104

Project: Samson Res., Livestock 30-1

Project Number: L-124

Location: S-30 T21-S, R-35-E Lea Co., NM

Lab Order Number: 6C30012

Report Date: 04/11/06

R.T. Hicks Consultants Ltd.
901 Rio Grande Blvd, NW Ste., F-142
Albuquerque NM, 87104

Project: Samson Res., Livestock 30-1
Project Number: L-124
Project Manager: Randy Hicks

Fax: (413) 403-9968

Reported:
04/11/06 15:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Windmill	6C30012-01	Water	03/30/06 08:40	03/30/06 17:00
TMW-1	6C30012-02	Water	03/30/06 09:10	03/30/06 17:00

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Windmill (6C30012-01) Water									
Chloride	**33.6**	5.00	mg/L	10	ED60306	03/31/06	04/03/06	EPA 300.0	
Total Dissolved Solids	**644**	5.00	"	1	ED60317	04/03/06	04/04/06	EPA 160.1	
TMW-1 (6C30012-02) Water									
Total Alkalinity	**198**	2.00	mg/L	1	ED60315	04/03/06	04/03/06	EPA 310.1M	
Chloride	**2240**	50.0	"	100	ED60306	04/03/06	04/03/06	EPA 300.0	
Total Dissolved Solids	**4520**	10.0	"	2	ED60317	04/03/06	04/04/06	EPA 160.1	
Sulfate	**258**	50.0	"	100	ED60306	04/03/06	04/03/06	EPA 300.0	

R.T. Hicks Consultants Ltd.
901 Rio Grande Blvd, NW Ste., F-142
Albuquerque NM, 87104

Project: Samson Res., Livestock 30-1
Project Number: L-124
Project Manager: Randy Hicks

Fax: (413) 403-9968

Reported:
04/11/06 15:55

Total Metals by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TMW-1 (6C30012-02) Water									
Calcium	**30.4**	0.100	mg/L	10	ED61105	04/11/06	04/11/06	EPA 6010B	
Magnesium	**5.62**	0.0100	"	"	"	"	"	"	
Potassium	**18.4**	0.500	"	"	"	"	"	"	
Sodium	**1530**	10.0	"	1000	"	"	"	"	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch ED60306 - General Preparation (WetChem)										
Blank (ED60306-BLK1)				Prepared & Analyzed: 04/03/06						
Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							
LCS (ED60306-BS1)				Prepared & Analyzed: 04/03/06						
Chloride	8.69		mg/L	10.0		86.9	80-120			
Sulfate	9.44		"	10.0		94.4	80-120			
Calibration Check (ED60306-CCV1)				Prepared & Analyzed: 04/03/06						
Chloride	9.04		mg/L	10.0		90.4	80-120			
Sulfate	9.95		"	10.0		99.5	80-120			
Duplicate (ED60306-DUP1)	**Source: 6C29006-01**			Prepared & Analyzed: 04/03/06						
Chloride	570	10.0	mg/L		564			1.06	20	
Sulfate	211	10.0	"		233			9.91	20	
Batch ED60315 - General Preparation (WetChem)										
Blank (ED60315-BLK1)				Prepared & Analyzed: 04/03/06						
Total Alkalinity	ND	2.00	mg/L							
Duplicate (ED60315-DUP1)	**Source: 6C29006-01**			Prepared & Analyzed: 04/03/06						
Total Alkalinity	176	2.00	mg/L		177			0.567	20	
Reference (ED60315-SRM1)				Prepared & Analyzed: 04/03/06						
Total Alkalinity	98.0		mg/L	100		98.0	90-110			

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch ED60317 - General Preparation (WetChem)										
Blank (ED60317-BLK1)				Prepared: 04/03/06	Analyzed: 04/04/06					
Total Dissolved Solids	ND	5.00	mg/L							
Duplicate (ED60317-DUP1)		**Source: 6C30012-01**		Prepared: 04/03/06	Analyzed: 04/04/06					
Total Dissolved Solids	662	5.00	mg/L		644			2.76	5	

Total Metals by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch ED61105 - 6010B/No Digestion										
Blank (ED61105-BLK1)				Prepared & Analyzed: 04/11/06						
Calcium	ND	0.0100	mg/L							
Magnesium	ND	0.00100	"							
Potassium	ND	0.0500	"							
Sodium	ND	0.0100	"							
Calibration Check (ED61105-CCV1)				Prepared & Analyzed: 04/11/06						
Calcium	2.00		mg/L	2.00		100	85-115			
Magnesium	2.15		"	2.00		108	85-115			
Potassium	1.76		"	2.00		88.0	85-115			
Sodium	1.71		"	2.00		85.5	85-115			
Duplicate (ED61105-DUP1)		**Source: 6D06010-01**		Prepared & Analyzed: 04/11/06						
Calcium	36.2	0.100	mg/L		38.7			6.68	20	
Magnesium	22.2	0.0100	"		23.6			6.11	20	
Potassium	6.15	0.0500	"		6.22			1.13	20	
Sodium	20.6	0.100	"		21.3			3.34	20	

R.T. Hicks Consultants Ltd.	Project: Samson Res., Livestock 30-1	Fax: (413) 403-9968
901 Rio Grande Blvd, NW Ste., F-142	Project Number: L-124	**Reported:**
Albuquerque NM, 87104	Project Manager: Randy Hicks	04/11/06 15:55

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K. Tuttle Date: 4/11/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Randy Hicks
Company Name: R.T. Hicks Consultants, LTD.
Company Address: 901 Rio Grande Blvd. NW, Ste F-142
City/State/Zip: Albuquerque, NM 87104
Telephone No: (505) 266-5004 Fax No: (505) 266-0745
Sampler Signature:

Project Name: Samson Res., Livestock 30-1
Project #: L-124
Project Loc: S-30 T-21-S, R-35-E Lea Co NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify)	Analyze For: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	Total Dissolved Solids	Chloride	BTEX + Naphthalene	Grain Size + Moisture	RUSH TAT (Pre-Schedule)
-01	Windmill	3/30/06	840	1	✓							✓					✓	✓	(SAR)						✓	✓			
-02	TMW-1	3/30/06	910	1	✓							✓					✓	✓							✓	✓			

Special Instructions: Send email copy of lab report to Dale Littlejohn, sent original lab report and invoce to Randy Hicks at the address above
✓ Add Anions + Cations to TMW-1 as per attached e-mail 04-03-06

Sample Containers Intact? (Y) N
Temperature Upon Receipt:
Laboratory Comments: 0.0
✓ labels

Relinquished by:	Date	Time	Received by:	Date	Time
	3/30/06	1700			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Laura Leal	3/30/06	17:00

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

nt: P.T. Hicks

e/Time: 4/30/08 17:00

ier #: 180012

ia's: CK

Sample Receipt Checklist

perature of container/cooler?	Yes	No	0.0 C
pping container/cooler in good condition?	Yes	No	
stody Seals intact on shipping container/cooler?	Yes	No	Not present
stody Seals intact on sample bottles?	Yes	No	Not present
ain of custody present?	Yes	No	
mple Instructions complete on Chain of Custody?	Yes	No	
ain of Custody signed when relinquished and received?	Yes	No	
ain of custody agrees with sample label(s)	Yes	No	
ntainer labels legible and intact?	Yes	No	
mple Matrix and properties same as on chain of custody?	Yes	No	
mples in proper container/bottle?	Yes	No	
mples properly preserved?	Yes	No	
mple bottles intact?	Yes	No	
servations documented on Chain of Custody?	Yes	No	
ntainers documented on Chain of Custody?	Yes	No	
fficient sample amount for indicated test?	Yes	No	
l samples received within sufficient hold time?	Yes	No	
OC samples have zero headspace?	Yes	No	Not Applicable

ther observations:

Variance Documentation:

ontact Person: - Date/Time: Contacted by:

Regarding:

Corrective Action Taken:

Jeanne McMurrey

From: "Dale Littlejohn" <dale@rthicksconsult.com>
To: <jeanne@elabtexas.com>
Sent: Monday, April 03, 2006 9:34 AM
Subject: RTH Samson Livestock 30 sample

Jeanne,

Please include major ion and cation analysis of the sample from the TMW-1 well (Samson Livestock 30 site). No need to change the analysis of the windmill sample. Please reply to this so I will know you got it.

Thanks,

Dale T Littlejohn
R T Hicks Consultants
(432) 528-3878 office
(432) 689-4578

--

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Dale Littlejohn

R.T. Hicks Consultants Ltd.- Midland

P.O. Box 7624

Midland, TX 79708

Project: Samson Livestock 30

Project Number: L-124-5

Location: Lea Co., NM

Lab Order Number: 6E16010

Report Date: 05/23/06

R.T. Hicks Consultants Ltd.- Midland	Project: Samson Livestock 30	Fax: (432) 689-4578
P.O. Box 7624	Project Number: L-124-5	**Reported:**
Midland TX, 79708	Project Manager: Dale Littlejohn	05/23/06 12:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TMW-1	6E16010-01	Water	05/10/06 14:10	05/16/06 15:45

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
TMW-1 (6E16010-01) Water									
Bromide	**1.50**	0.500	mg/L	10	EE61705	05/17/06	05/17/06	EPA 300.0	
Chloride	**2580**	25.0	"	50	EE61704	05/17/06	05/17/06	"	
Total Dissolved Solids	**3900**	5.00	"	1	EE61718	05/17/06	05/17/06	EPA 160.1	

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General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE61704 - General Preparation (WetChem)										
Blank (EE61704-BLK1)				Prepared & Analyzed: 05/17/06						
Chloride	ND	0.500	mg/L							
LCS (EE61704-BS1)				Prepared & Analyzed: 05/17/06						
Chloride	10.1	0.500	mg/L	10.0		101	80-120			
Calibration Check (EE61704-CCV1)				Prepared & Analyzed: 05/17/06						
Chloride	10.2		mg/L	10.0		102	80-120			
Duplicate (EE61704-DUP1)		**Source: 6E16004-04**		Prepared & Analyzed: 05/17/06						
Chloride	26200	250	mg/L		25800			1.54	20	
Matrix Spike (EE61704-MS1)		**Source: 6E16004-04**		Prepared & Analyzed: 05/17/06						
Chloride	31700	250	mg/L	5000	25800	118	80-120			
Batch EE61705 - General Preparation (WetChem)										
Blank (EE61705-BLK1)				Prepared & Analyzed: 05/17/06						
Bromide	ND	0.0500	mg/L							
LCS (EE61705-BS1)				Prepared & Analyzed: 05/17/06						
Bromide	1.96	0.0500	mg/L	2.00		98.0	80-120			
Calibration Check (EE61705-CCV1)				Prepared & Analyzed: 05/17/06						
Bromide	2.05		mg/L	2.00		102	80-120			
Duplicate (EE61705-DUP1)		**Source: 6E16004-04**		Prepared & Analyzed: 05/17/06						
Bromide	66.0	5.00	mg/L		66.1			0.151	20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE61705 - General Preparation (WetChem)										
Matrix Spike (EE61705-MS1)		**Source: 6E16004-04**		Prepared & Analyzed: 05/17/06						
Bromide	264	0.0500	mg/L	200	66.1	99.0	80-120			
Batch EE61718 - Filtration Preparation										
Blank (EE61718-BLK1)				Prepared & Analyzed: 05/17/06						
Total Dissolved Solids	ND	5.00	mg/L							
Duplicate (EE61718-DUP1)		**Source: 6E16010-01**		Prepared & Analyzed: 05/17/06						
Total Dissolved Solids	3990	5.00	mg/L		3900			2.28	5	

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 5/23/2006

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Dale Littlejohn
Company Name: RT Hicks Consultants Ltd
Company Address: P.O. Box 7624
City/State/Zip: Midland, Texas 79708
Telephone No: (432) 528-3878
Fax No: (432) 689-4578 (Fax)
Sampler Signature: Dale Littlejohn

Project Name: Samson Livestock 30
Project #: L-124-5
Project Loc: Lea Co., NM
PO #:

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO_3	HCl	NaOH	H_2SO_4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	Analyze For: TCLP: TPH: 418.1 8015M 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	TOTAL: Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	Chloride	Bromide	Total Dissolved Solids		RUSH TAT (Pre-Schedule)
5/16/06 -01	TMW-1	5/10/06	1410	1	X					X		X														X	X	X		

Special Instructions: Send Invoice to RT Hicks Consult. 901 Rio Grande Blvd. NW, Suite F-142, Albuquerque, NM 87104; Send results to Dale Littlejohn at the adress above.

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments: 1.0°C
1-L poly-round
no seals/no labels

Relinquished by:	Date	Time	Received by:	Date	Time
Dale Littlejohn	5/16/06	3:45			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Lauri Kelly	5/16/06	3:45

Environmental Lab of Texas
Variance / Corrective Action Report – Sample Log-In

ent: R.T. Hicks

te/Time: 5/16/00 3:45

der #: 6E16010

ials: CK

Sample Receipt Checklist

perature of container/cooler?	Yes	No	1.0 C
ping container/cooler in good condition?	~~Yes~~	No	
tody Seals intact on shipping container/cooler?	Yes	No	~~Not present~~
tody Seals intact on sample bottles?	Yes	No	~~Not present~~
in of custody present?	~~Yes~~	No	
ple Instructions complete on Chain of Custody?	~~Yes~~	No	
in of Custody signed when relinquished and received?	~~Yes~~	No	
in of custody agrees with sample label(s)	~~Yes~~	No	
tainer labels legible and intact?	~~Yes~~	No	
ple Matrix and properties same as on chain of custody?	~~Yes~~	No	
ples in proper container/bottle?	~~Yes~~	No	
cles properly preserved?	~~Yes~~	No	
ple bottles intact?	~~Yes~~	No	
servations documented on Chain of Custody?	~~Yes~~	No	
tainers documented on Chain of Custody?	~~Yes~~	No	
icient sample amount for indicated test?	~~Yes~~	No	
amples received within sufficient hold time?	~~Yes~~	No	
samples have zero headspace?	Yes	No	~~Not Applicable~~

ier observations:

Variance Documentation:

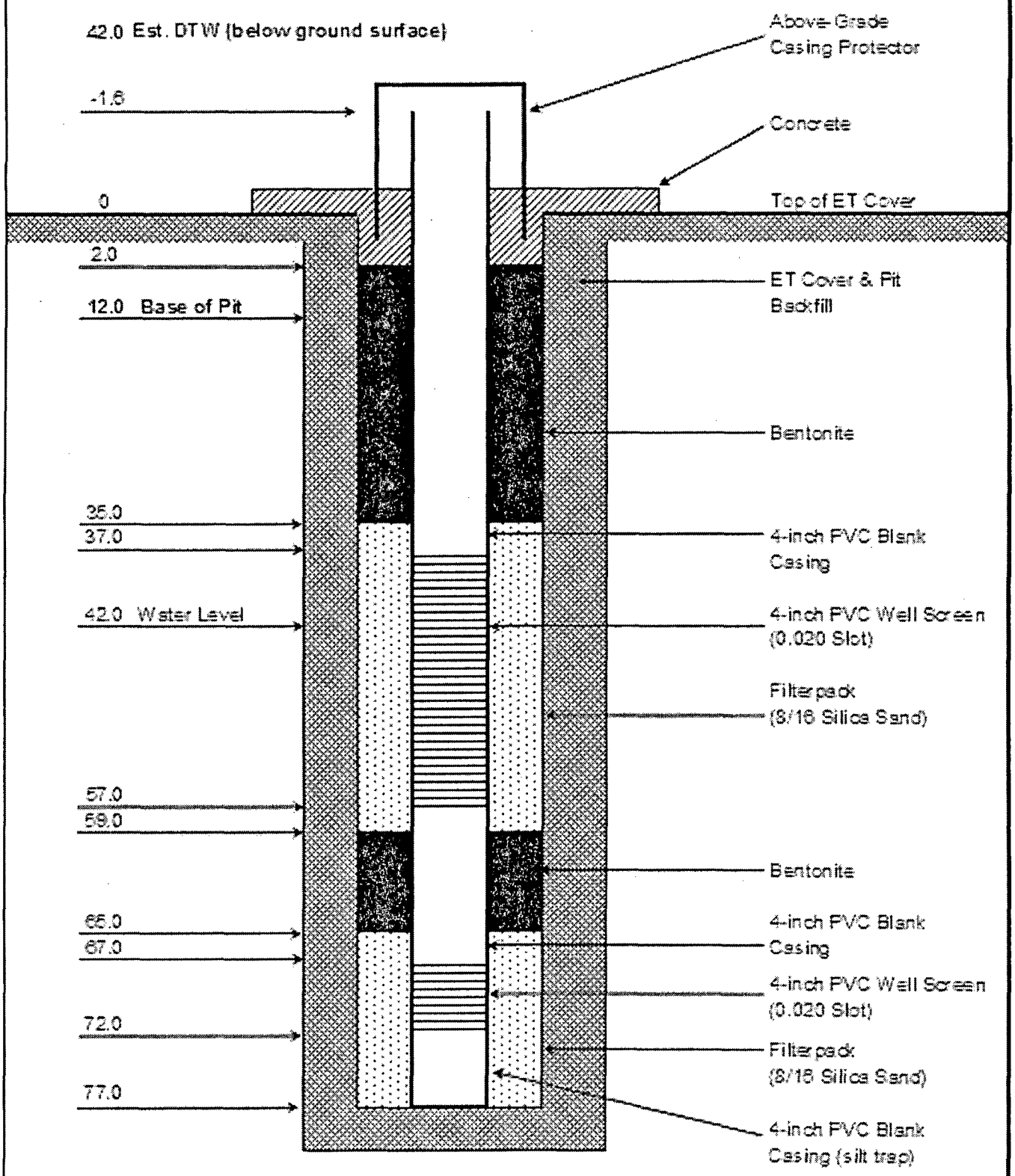
tact Person: - Date/Time: Contacted by:

garding:

rective Action Taken:

Appendix D

E.T. PIT COVER MONITORING WELL CONSTRUCTION DIAGRAM



R T Hicks Consultants Ltd	SITE: Samson Livestock "30" Site		E.T. Pit Cover Proposed Monitoring Well
	DATE: 9/5/06	REV. NO.: 1	
	AUTHOR: DTL	TECH: DTL	

Environmental Lab of Texas

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5/16/06 -01	TMW-1	5/10/06	1410	1	X					X		X														X	X	X		

Special Instructions: Send Invoice to RT Hicks Consult. 901 Rio Grande Blvd. NW, Suite F-142, Albuquerque, NM 87104; Send results to Dale Littlejohn at the adress above.

Sample Containers Intact? Y N
Temperature Upon Receipt: 1.0°c
Laboratory Comments: 1L-poly-round no seals/no labels

Relinquished by:	Date	Time	Received by:	Date	Time
Dale Littlejohn	5/16/06	8:45			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Laura Kelly	5/16/06	8:45