Nadel and Gussman HEYCO, LLC

September 17, 2013

Mr. Mike Bratcher
OIL CONSERVATION DIVISION
District 2
811 South First Street
Artesia, NM 88210

Re: Final Remediation Report
Rock Island 16 State #1H
Section 16, T18S, R26E
2,260' FNL 1,650' FEL
API: 30-015-38461
Eddy County, New Mexico

Dear Mr. Bratcher:

On 7 March 2012, at approximately 14:30 hrs., Nadel & Gussman HEYCO, LLC (NGH) experienced an accidental surface discharge at the Rock Island 16 State #1H well site located in Section 16, T18S, R26E, during a routine artificial lift maintenance operation. Because environmental impacts from this discharge impacted both State and University lands, Dr. Robert Flynn, Superintendent of the New Mexico State University (NMSU) Agricultural Science Center, was contacted immediately and apprised of the situation. Dr. Flynn has participated in all activities related to scientific information gathering and infield procedures throughout the subsequent remediation process.

NGH herewith submits its Final Remediation Report (FRR) for the Rock Island 16 State #1H discharge in concert with all other previous reports submitted to the NMOCD. Also, attached for your review is a report prepared by the Ag Science Center Superintendent for the NMSU Campus.

Laboratory analyses from recent infield investigations are attached for your review. NGH believes it kept all interested parties apprised of infield conditions, as was appropriate. From the beginning, the NMOCD, NMSU and NGH, as well as appropriate Eddy County and New Mexico State authorities have worked together and through cooperation and communication limited the overall impact of the discharge.

Sincerely,

Trent W. Green
Chief Operating Officer
Nadel and Gussman, HEYCO, LLC

Dr. Robert Flynn
Agronomist
NMSU Ag Science Center

P O Box 1936
Roswell, NM 88202-1936
(575) 623-6601 (office) ◻ (575) 627-2439 (fax)

Summary Report

Keith Cannon
Nadel & Gussman HEYCO, LLC

P. O. Box 1936
Roswell, NM 88202

Report Date: July 30, 2013

Work Order: 13072432

Project Location: NM
Project Name: Rock Island 16 No.1
Project Number: Final Disposition West Side

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
336110	W Side Center 2'	soil	2013-07-23	16:40	2013-07-24
336111	NE Corner @ 2' W	soil	2013-07-23	16:35	2013-07-24
336112	SW Corner @ 2'W	soil	2013-07-23	16:55	2013-07-24
336113	NW Corner @ 2'W	soil	2013-07-23	16:20	2013-07-24
336114	SE Corner W	soil	2013-07-23	16:50	2013-07-24

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
336110 - W Side Center 2'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**4.09**
336111 - NE Corner @ 2' W	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**4.18**
336112 - SW Corner @ 2'W	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
336113 - NW Corner @ 2'W	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**4.20**
336114 - SE Corner W	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**4.14**

Sample: 336110 - W Side Center 2'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 336111 - NE Corner @ 2' W

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 336112 - SW Corner @ 2'W

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 336113 - NW Corner @ 2'W

Param	Flag	Result	Units	RL
Chloride		**24.5**	mg/Kg	4

Sample: 336114 - SE Corner W

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

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Summary Report

Keith Cannon
Nadel & Gussman Heyco, LLC

P.O. Box 1936
Roswell, NM 88202

Report Date: July 25, 2012

Work Order: 12071317

Project Location: Containment Progress
Project Name: Rock Island Progress

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
303586	Large Pit W End @ 1'	soil	2012-07-10	08:10	2012-07-11
303587	Large Pit W End @ 2'	soil	2012-07-10	08:14	2012-07-11
303588	Large Pit Middle Area @ 1'	soil	2012-07-10	08:16	2012-07-11
303589	Large Pit Middle Area @ 2'	soil	2012-07-10	08:20	2012-07-11
303590	Large Pit NE End @ 1'	soil	2012-07-10	08:25	2012-07-11
303591	Large Pit NE End @ 2'	soil	2012-07-10	08:30	2012-07-11
303592	Small Pit East Pit @ 1'	soil	2012-07-10	08:37	2012-07-11
303593	Small Pit East Pit @ 2'	soil	2012-07-10	08:48	2012-07-11

	BTEX				MTBE	TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
303586 - Large Pit W End @ 1'	<0.0200	<0.0200	<0.0200	**0.121**		<50.0	**49.3** Qs
303587 - Large Pit W End @ 2'	<0.200 [1]	<0.200	<0.200	<0.200		**505**	**127** Qs
303588 - Large Pit Middle Area @ 1'	**2.34**	**46.9**	**44.7**	**94.0**		**1080**	**2290** Qs
303589 - Large Pit Middle Area @ 2'	**2.26**	**45.2**	**42.8**	**91.1**		**1140**	**2100** Qs
303590 - Large Pit NE End @ 1'	<0.400 [2]	<0.400	**0.615**	**3.03**		**791**	**588** Qs
303591 - Large Pit NE End @ 2'	**12.9**	**107**	**62.4**	**146**		**1600**	**2700** Qs
303592 - Small Pit East Pit @ 1'	<0.400 [3]	**4.43**	**5.31**	**16.8**		**1270**	**1120** Qs
303593 - Small Pit East Pit @ 2'	**12.7**	**106**	**77.8**	**143**		**3450**	**2280** Qs

[1] Sample dilution due to hydrocarbons.
[2] Sample dilution due to hydrocarbons.
[3] Sample dilution due to hydrocarbons.

Summary Report

Keith Cannon
Nadel & Gussman Heyco, LLC

P.O. Box 1936
Roswell, NM 88202

Report Date: April 11, 2012

Work Order: 12041113

Project Name: Rock Island 16 State 1H Pad

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
294025	Pad @ SE Area Comp.	soil	2012-04-10	07:00	2012-04-11
294026	Pad @ NW Area Comp.	soil	2012-04-10	07:21	2012-04-11
294027	Pad @ SW Area Comp.	soil	2012-04-10	08:30	2012-04-11

Sample: 294025 - Pad @ SE Area Comp.

Param	Flag	Result	Units	RL
Chloride	Q.	<50.0	mg/Kg	5

Sample: 294026 - Pad @ NW Area Comp.

Param	Flag	Result	Units	RL
Chloride	Q.	<50.0	mg/Kg	5

Sample: 294027 - Pad @ SW Area Comp.

Param	Flag	Result	Units	RL
Chloride	Q.	<50.0	mg/Kg	5

Summary Report

Keith Cannon
Nadel & Gussman Heyco, LLC

P.O. Box 1936
Roswell, NM 88202

Report Date: April 5, 2012

Work Order: 12032322

Project Location: Eddy Co., NM
Project Name: Rock Island 16 State 1H
Project Number: Containment Area & Pad

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
292198	North Mix @ 1'	soil	2012-03-23	00:00	2012-03-23
292199	Central of N @ 1'	soil	2012-03-23	00:00	2012-03-23
292200	NE end of N @ 1'	soil	2012-03-23	00:00	2012-03-23
292201	NW end of N @ 1'	soil	2012-03-23	00:00	2012-03-23
292202	Powerline (L) @ 6 in.	soil	2012-03-23	00:00	2012-03-23
292203	Powerline (R) @ 6 in.	soil	2012-03-23	00:00	2012-03-23
292204	Pad NE @ 6 in.	soil	2012-03-23	00:00	2012-03-23
292363	Composite North & Central	soil	2012-03-23	00:00	2012-03-23

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
292198 - North Mix @ 1'	**0.329**	**2.59**	**4.63**	**9.97**	**1270** Q.	**1170**
292199 - Central of N @ 1'	<0.100	**0.404**	**0.514**	**1.24**	**129** Q.	**76.5**
292200 - NE end of N @ 1'	**0.486**	**3.78**	**12.1**	**20.9**	**1390** Q.	**3020**
292201 - NW end of N @ 1'	**0.0903**	**0.123**	**0.142**	**0.326**	<50.0 Q.	**3.15**
292202 - Powerline (L) @ 6 in.	<0.0200	<0.0200	<0.0200	<0.0200	**67.0** Q.	<2.00
292203 - Powerline (R) @ 6 in.	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Q.	<2.00
292204 - Pad NE @ 6 in.	<0.0200	<0.0200	<0.0200	<0.0200	<50.0 Q.	**3.20**

Sample: 292198 - North Mix @ 1'

Param	Flag	Result	Units	RL
Chloride		**3760**	mg/Kg	4
Total Silver		<0.500	mg/Kg	0.5
Total Arsenic		**5.05**	mg/Kg	2
Total Barium		**89.2**	mg/Kg	1

continued ...

sample 292198 continued ...

Param	Flag	Result	Units	RL
Total Cadmium		**0.686**	mg/Kg	0.5
Total Chromium		**15.9**	mg/Kg	0.5
Total Mercury		<0.0250	mg/Kg	0.025
Total Lead		**4.77**	mg/Kg	1
Total Selenium		<2.00	mg/Kg	2

Sample: 292199 - Central of N @ 1'

Param	Flag	Result	Units	RL
Chloride		**497**	mg/Kg	4
Total Silver		<0.500	mg/Kg	0.5
Total Arsenic		**5.50**	mg/Kg	2
Total Barium		**110**	mg/Kg	1
Total Cadmium		**0.769**	mg/Kg	0.5
Total Chromium		**19.2**	mg/Kg	0.5
Total Mercury		<0.0250	mg/Kg	0.025
Total Lead		**4.86**	mg/Kg	1
Total Selenium		<2.00	mg/Kg	2

Sample: 292200 - NE end of N @ 1'

Param	Flag	Result	Units	RL
Chloride		**4460**	mg/Kg	4

Sample: 292201 - NW end of N @ 1'

Param	Flag	Result	Units	RL
Chloride		**1900**	mg/Kg	4

Sample: 292202 - Powerline (L) @ 6 in.

Param	Flag	Result	Units	RL
Chloride		**513**	mg/Kg	4

Sample: 292203 - Powerline (R) @ 6 in.

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 292204 - Pad NE @ 6 in.

Param	Flag	Result	Units	RL
Chloride		**2660**	mg/Kg	4

Sample: 292363 - Composite North & Central

Param	Flag	Result	Units	RL
SPLP Arsenic		<0.0100	mg/L	0.01
SPLP Barium		**0.0200**	mg/L	0.01
SPLP Cadmium		<0.00500	mg/L	0.005
SPLP Chromium		<0.0100	mg/L	0.01
SPLP Lead		<0.00500	mg/L	0.005
SPLP Selenium		<0.0200	mg/L	0.02
Total Silver		<0.500	mg/Kg	0.5
Total Arsenic		**5.20**	mg/Kg	2
Total Barium		**100**	mg/Kg	1
Total Cadmium		**0.725**	mg/Kg	0.5
Total Chromium		**17.1**	mg/Kg	0.5
Total Mercury		<0.0250	mg/Kg	0.025
Total Lead		**4.80**	mg/Kg	1
Total Selenium		<2.00	mg/Kg	2

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Summary Report

Keith Cannon
Nadel & Gussman Heyco, LLC

P.O. Box 1936
Roswell, NM 88202

Report Date: April 4, 2012

Work Order: 12040206

Project Location: Well Discharge
Project Name: Well Discharge
Project Number: Rock Island 16 State No. 1H

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
293244	Pad @ NE 1'	soil	2012-03-30	17:01	2012-04-02
293245	Powerline (L) @ 1'	soil	2012-03-30	17:12	2012-04-02
293246	Cont. NE of N Area @ 3'	soil	2012-03-30	13:33	2012-04-02
293247	Cont. NW of N Area @ 3'	soil	2012-03-30	13:41	2012-04-02
293248	Cont. Central of N Area @ 3'	soil	2012-03-30	13:20	2012-04-02
293249	Cont. N Mix @ 3'	soil	2012-03-30	13:10	2012-04-02

	BTEX				MTBE	TPH DRO - NEW	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
293244 - Pad @ NE 1'	<0.0200	<0.0200	<0.0200	<0.0200		<50.0	<2.00 Qc
293245 - Powerline (L) @ 1'	<0.0200	<0.0200	<0.0200	<0.0200		<50.0	<2.00 Qc
293246 - Cont. NE of N Area @ 3'	<0.0200	<0.0200	<0.0200	<0.0200		<50.0	<2.00 Qc
293247 - Cont. NW of N Area @ 3'	<0.0200	<0.0200	<0.0200	<0.0200		<50.0	<2.00 Qc
293248 - Cont. Central of N Area @ 3'	<0.0200	<0.0200	<0.0200	<0.0200		<50.0	<2.00 Qc
293249 - Cont. N Mix @ 3'	<0.0200	<0.0200	<0.0200	<0.0200		<50.0	<2.00 Qc

Sample: 293244 - Pad @ NE 1'

Param	Flag	Result	Units	RL
Chloride		<50.0	mg/Kg	5

Sample: 293245 - Powerline (L) @ 1'

continued ...

sample 293245 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		<50.0	mg/Kg	5

Sample: 293246 - Cont. NE of N Area @ 3'

Param	Flag	Result	Units	RL
Chloride		<50.0	mg/Kg	5

Sample: 293247 - Cont. NW of N Area @ 3'

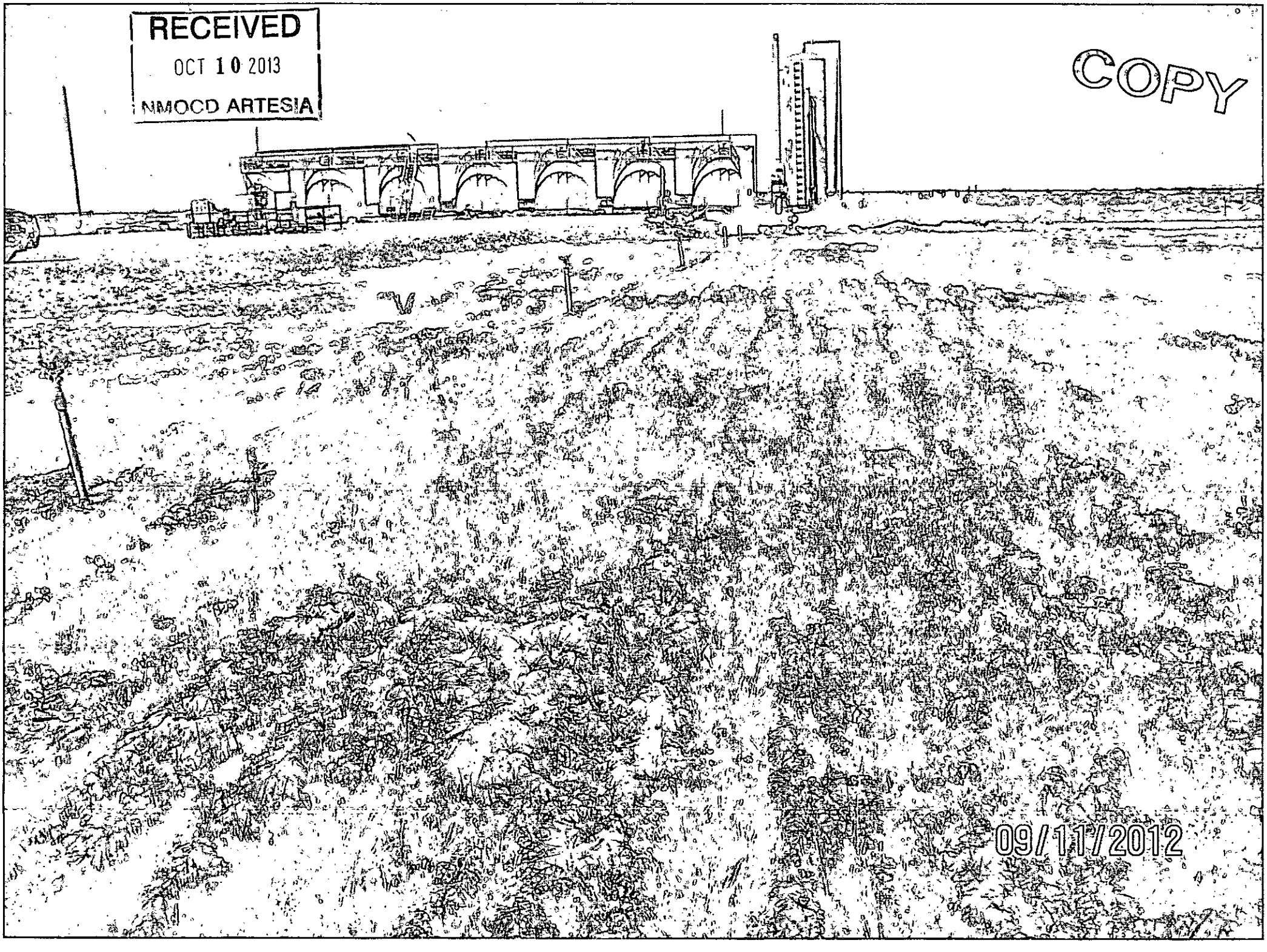
Param	Flag	Result	Units	RL
Chloride		<50.0	mg/Kg	5

Sample: 293248 - Cont. Central of N Area @ 3'

Param	Flag	Result	Units	RL
Chloride		<50.0	mg/Kg	5

Sample: 293249 - Cont. N Mix @ 3'

Param	Flag	Result	Units	RL
Chloride		<50.0	mg/Kg	5



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09/11/2012

Agricultural Science Center at Artesia
67 E. Four Dinkus Rd.
Artesia, NM 88210-9110
(575) 748-1228
(575) 748-1229 fax
From the desk of Robert Flynn, Ph.D.

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June 19, 2013

Assessment of Damages to NMSU Land as a Direct Result of March 7, 2012, Release Event from Nadel & Gussman HEYCO, LLC, Rock Island 16 State No. 1H

On 7 March 2012, at approximately 1430 hr, Nadel & Gussman HEYCO, LLC (NGH) experienced a release from the Rock Island 16 State No.1H well at approximately 2,000' during active work over operations. NGH took immediate action to shutdown the well. CUDD Well Control Inc. (herein after CUDD) was contacted on the evening of March 7 for immediate mobilization to the Rock Island location to assess well conditions. CUDD personnel arrived late evening on March 7th. They began well assessment and simultaneously recommended a fresh water misting system that was set up over the wellhead to reduce fire danger. Berms were pushed up on the north side of the pad to contain all discharged fluids on location (Fig 1). This area subsequently became designated as the "containment area". Vacuum trucks hauled approximately 800 bbls. of released fluids comprised of well discharge and fresh water from CUDD's misting system to an authorized disposal site. Impacts to the surrounding area from the well release were significantly reduced through the dilution effect of CUDD's misting system, which delivered an estimated 3,000 bbls of water. During this event, winds were high and temperatures were cool (less than 50°F). No inversion presented itself which could have had lasting effects in contact zones. The release was stopped mid-morning on March 9, 2012. The weather during the event progressed from a high of 82°F on March 7 just before a cold front pushed through the area dropping the high for March 8 and 9 to 40°F and 43°F, respectively. Winds were high on March 7 running a total of 410 miles in a 24-hour period ending on March 8 at 7am. Winds decreased to 257 and 186 miles in a 24 hour period on March 8 and 9, respectively. There was drizzle beginning the evening of March 7 that persisted through March 9. Measurable precipitation totaled 0.02 inches on March 9.

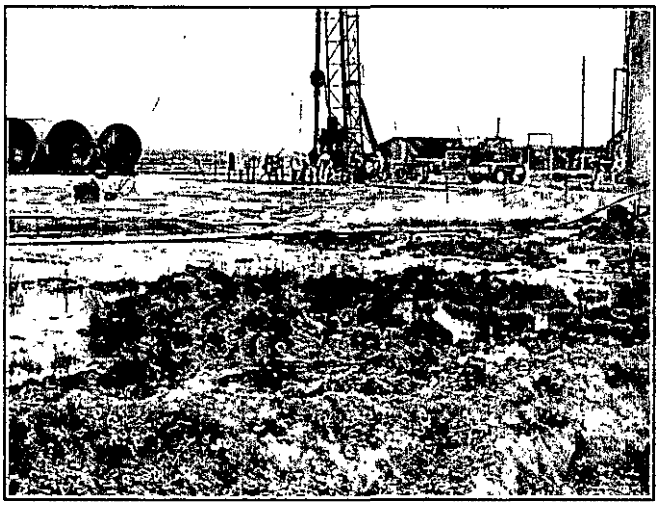

Figure 1. Soil berm used to limit surface migration of release soil and water.

The gaseous release from the well did not exceed 4 ppm H_2S, as verified by onsite monitoring equipment. However, as a

preliminary precaution, at the request of NGH local emergency personnel had the immediate area evacuated. Airborne over spray during the event did not exceed 300 feet in any direction. No contact was made with growing crops, farmland, or algae ponds. Therefore, the environmental impact was reduced or non-existent in affected areas. These over-spray areas show no presence of hydrocarbon staining on plants, soils or buildings. Some stored University equipment (Figure 2) and rangeland plants (Figure 3) were misted by the low-profile plume and were subsequently sprayed by NGH with biodegradable soap and hot water. Soil berms effectively halted the flow of water and oil that had ponded behind the berms. A vacuum truck (Figure 4) was used to remove much of the oil and water behind the berms. Much of the released oil was contained on the pad as stated above.

Figure 2. Oil coating on NMSU trailer used for hauling cotton.

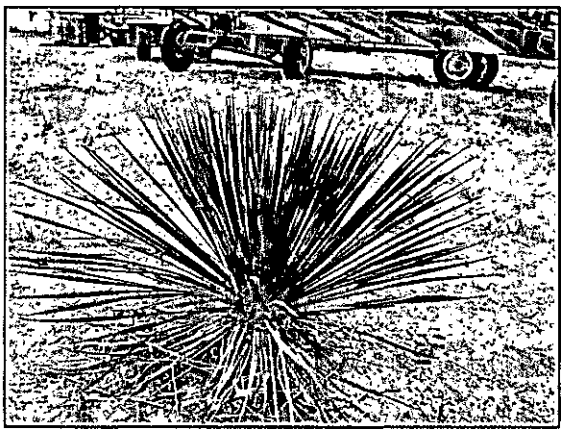

Figure 3. Example of oil coating on rangeland plants.

During the event the superintendent allowed access to the well site through farm roads to aid in timely delivery of equipment and water to the site. This led to some compaction in the approaches to the well pad. Much of the equipment was situated just off the pad (Figure 5).

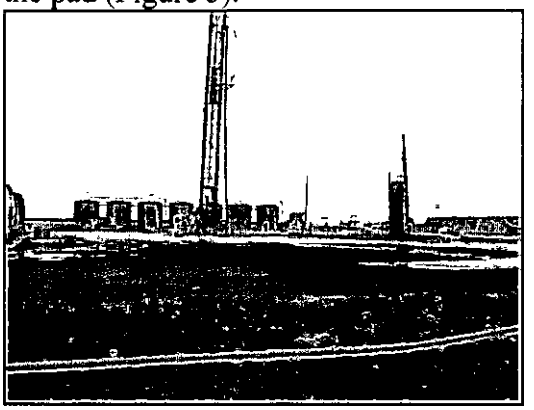

Figure 5. Tanks used during event positioned off the north and south sides of the pad.

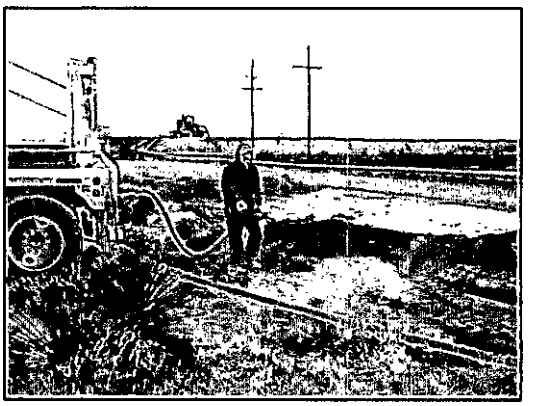

Figure 4. Example of suction hose being used to remove ponded water and oil.

Figure 6 shows an aerial image from Google Maps as the NMSU property looked in May 2011. The pad and approach to the pad from Lake Road had been established by this time.

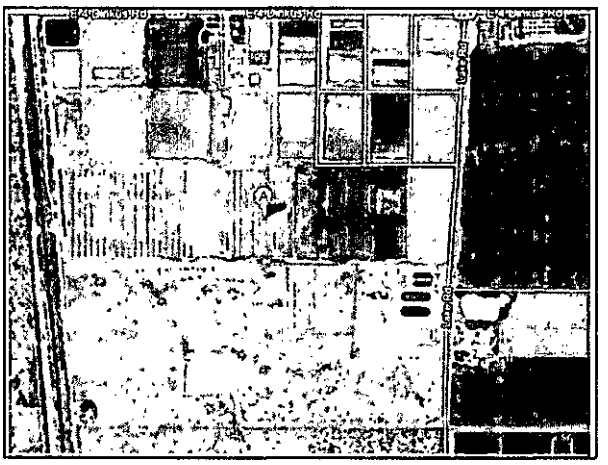

Figure 6. Google Maps image of NMSU Agricultural Science Center at Artesia and immediate area in May, 2011.

Figure 7 is an April 2013 Google Maps image of the Rock Island 16 State No.1H after all reclamation efforts. The figure identifies areas that were once part of the pad, traffic areas used during the event, soil areas removed due to contamination, and an area actively reclaimed. Also included in Figure 7 is the location of the NMSU topsoil stockpile used to fill-in areas removed due to soil and salt water contamination.

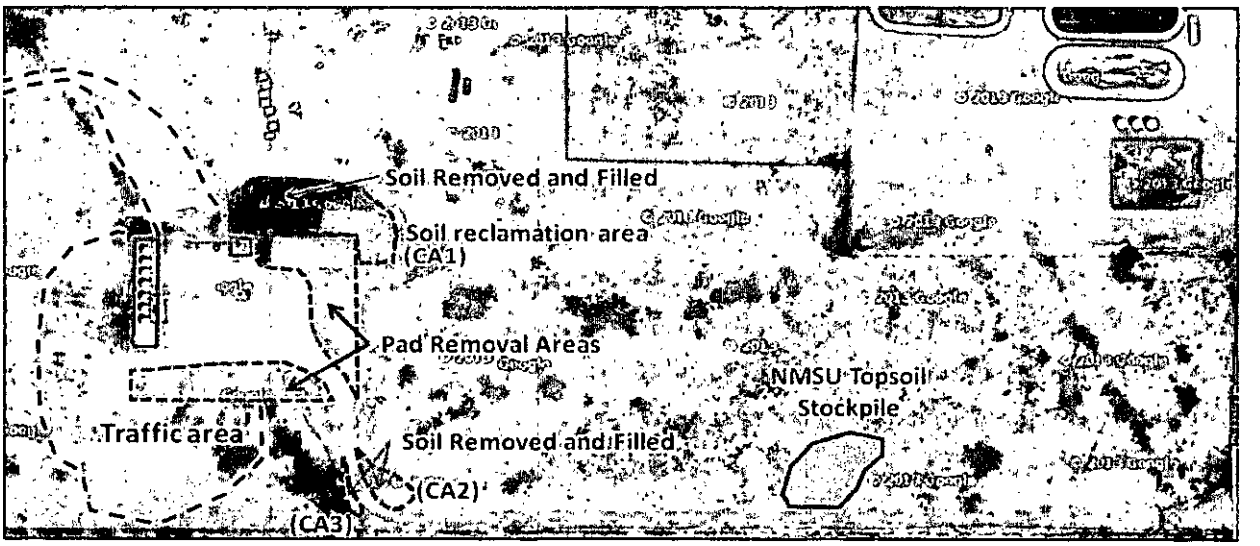

Figure 7. April 2013 Google Maps image of Rock Island 16 State No. 1H with labels identifying activity after well release.

Containment area 1 (CA1) measured as an "L" shaped polygon with an estimated total area of 21,549 sq ft. In late April to early May of 2012 CA1 was treated with manure and fertilizers to assist in hydrocarbon breakdown. Three personnel from ASC-Artesia, a tractor, and a fertilizer spreader were used for a period of 1 hour to assist in reducing the hydrocarbons in area CA1. The area was bermed and water was added to stimulate microbial activity. Subsequently, the berm was removed and a sprinkler system was setup to aid in further restoration of the site. The sprinkler system was an unused system from ASC-Artesia. It was used after the area was seeded in summer of 2012. Water was provided by HeyCo. Grass grew well in the area with exception of a zone where it had died back. Soil from this area was sampled by Robert Flynn to a depth of 24 inches and submitted to Ward Laboratories, Kearney, NE, for standard agricultural analysis for a soil salinity and chloride assessment (Table 1).

Table 1. Soil chemical assessment from west side of CA1.

Depth	ECe	SAR	Chloride	pH	Fe	Mn
	mmhos/cm		mg/kg		mg/kg	mg/kg
0-12"	22.1	23.6	9550	7.6	39.2	99.4
12-24"	45.8	33.6	16475	7.7	34.6	102.5

The high salinity and SAR necessitated that the soil from west side of area CA1 be removed from the site and backfilled with soil that was present on the farm in a stockpile from previous earthwork done within the boundaries of the farm. This activity was performed over the winter of 2012. The area that was filled in with soil was subsequently topped with composted mulch from a Ruidoso composting facility to help keep the area from blowing offsite due to wind.

Containment area 2 measured 5,355 square feet and containment area 3 measured 2,982 square feet. Soil was removed to a average depth of 14-inches in area 3 and 10-inches in area 4. A total of 180 yards of stockpiled topsoil from the NMSU farm was used to fill containment areas 2 and 3. This was done to restore the safety of the road area for trucks entering and leaving the area in a timely manner.

A total of 320 yards of fill dirt was used on the entire site where contaminated soil was moved offsite. Good quality soil is worth $9.00 per yard. Good topsoil is in short supply in this area and it was the desire of the superintendent to use stockpiled soil that was already onsite.

The total land area disturbed from containment activities totaled 29,886 square feet.

Traffic to the well site was directed through a gate on the southwest side of the farm where an additional 12,818 sq ft of land was disturbed (Figure .

Impact to Onsite NMSU Workforce

Onsite NMSU employees left the premises early on March 7. Four field personnel missed one hour of work on March 7 and 8 hours on March 9 due to the evacuation. Five office personnel missed 2 hours on March 7 and 8 hours on March 9. A total of 82 hours of work were lost as a result of the evacuation. Three personnel from ASC-Artesia, a tractor, and a fertilizer spreader were used for a period of one hour to assist in reducing the hydrocarbons in CA1.

Respectfully Submitted,

Robert Flynn, Ph.D.
Extension Agronomist
Associate Professor

XC: Keith Duncan, Superintendent
Addendum follows

Addendum: Conditions as of Spring 2013

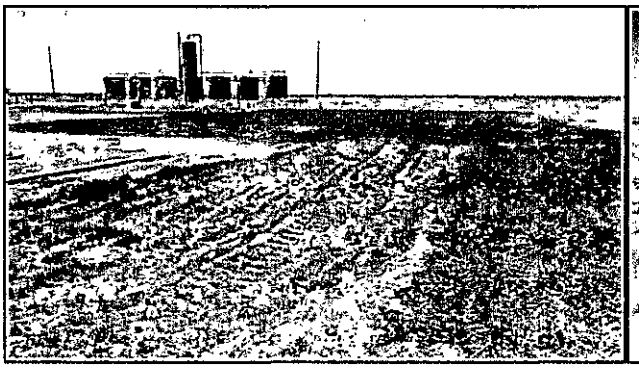

Figure 8. Containment Area 1 with composted mulch. Grassy area is from 2012 planting of range grasses and irrigation.

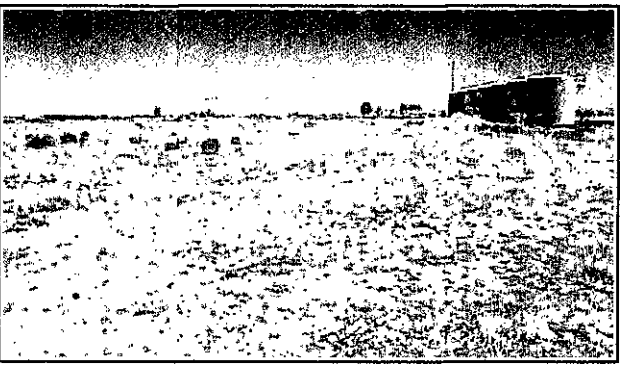

Figure 9. Traffic area on southwest side of pad area.

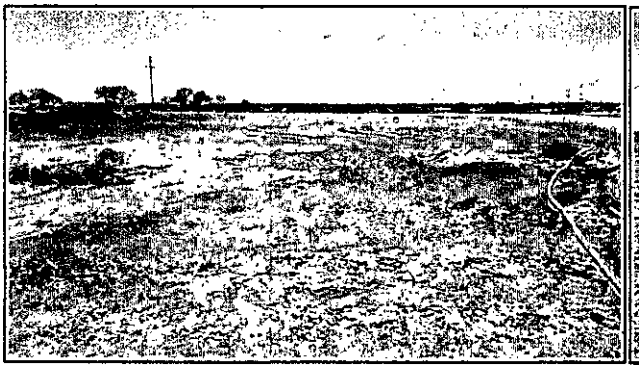

Figure 10. Southerly view of containment area 2 and beginning of pad removal area in foreground.

Figure 11. Southwesterly view from the edge of the current pad. Area is a pad removal area and traffic area in the background.

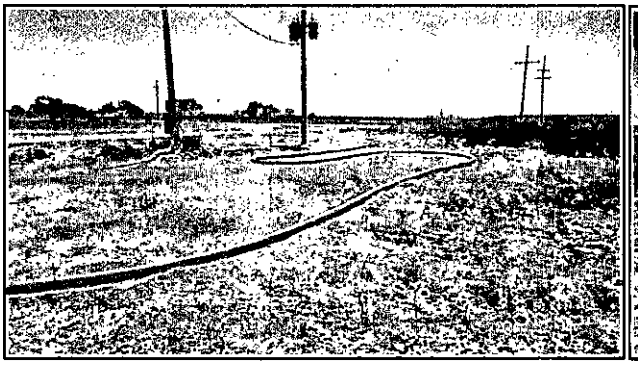

Figure 12. Southeasterly view toward containment area 3 with pad removal area in the foreground.

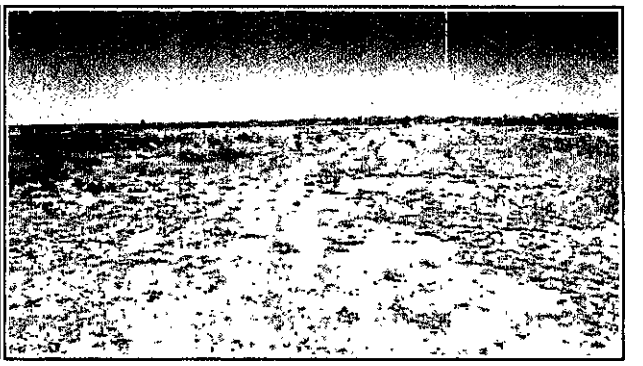

Figure 13. Northwesterly view of traffic road leading into Rock Island 16 State No.1H at NMSU ASC-Artesia. See also Figure 7.