GW - 107

GENERAL CORRESPONDENCE

2010

El Paso Natural Gas Company

Jal No. 4 Plant
Lea County, New Mexico
NMOCD Case #GW-107R

Source: Street view screen capture from Google Earth

Plant Location - 2005 Aerial

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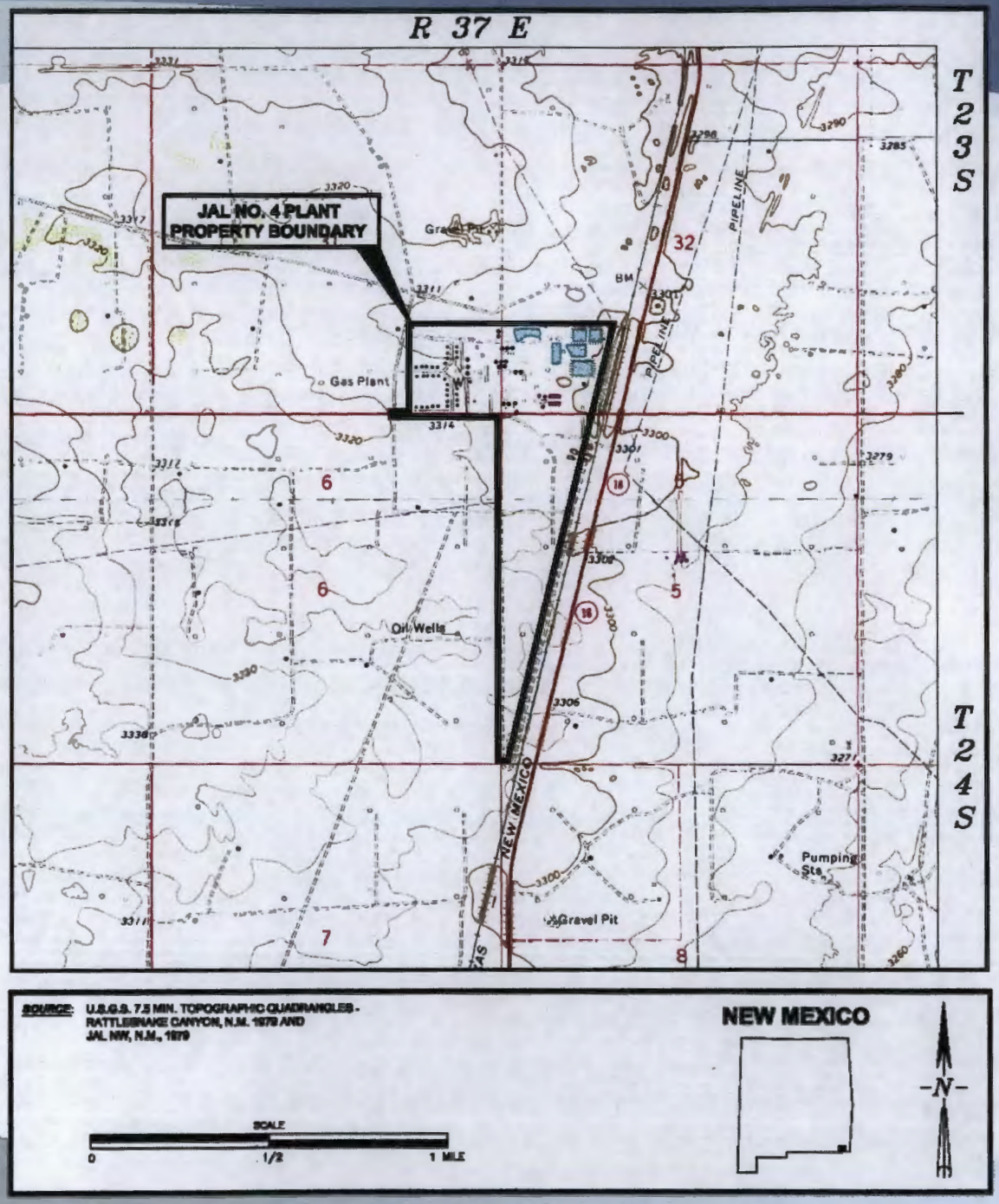
Source: 2005 Aerial – Screen capture from Google Earth

Plant Location and Topographic Features



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Site History

- The Jal No. 4 Gas Plant (Plant) was constructed by El Paso Natural Gas Company (EPNG) in 1952 to treat, compress and transport natural gas to EPNG's main transmission lines.
- EPNG discontinued use of the Plant in 1987, leasing portions of the Plant property to Christie Gas Corporation (Christie) that same year.
- The Plant was eventually sold to Christie in 1991.
- In December 2002, Christie sold the Plant to Texas LPG Storage Company (Texas LPG).
- In March 2008, Texas LPG sold the plant to Western Refining, Inc. (WFI). WFI is the current owner of the Jal No. 4 Plant property.
- Throughout these transactions, EPNG has retained the environmental liability for groundwater impacts due to historic operations at the Plant.

Site History
(continued)

- Brine and wastewater at the Plant were managed in 8 unlined retention ponds from 1952 to 1981.
- Beginning in 1981, brine at the Plant was managed in 3 synthetic-lined retention ponds.
- In 1989, a leak was detected in one of the brine retention ponds and EPNG elected to close 2 of the ponds.
- In response to the detected leak, the New Mexico Oil Conservation Division (NMOCD) requested that EPNG perform a hydrologic study.
- This request led to the drilling of 3 groundwater monitoring wells and a limited groundwater study at the site in May 1989.
- The preliminary findings of this study indicated that brine-impacted groundwater was present beneath the Plant.

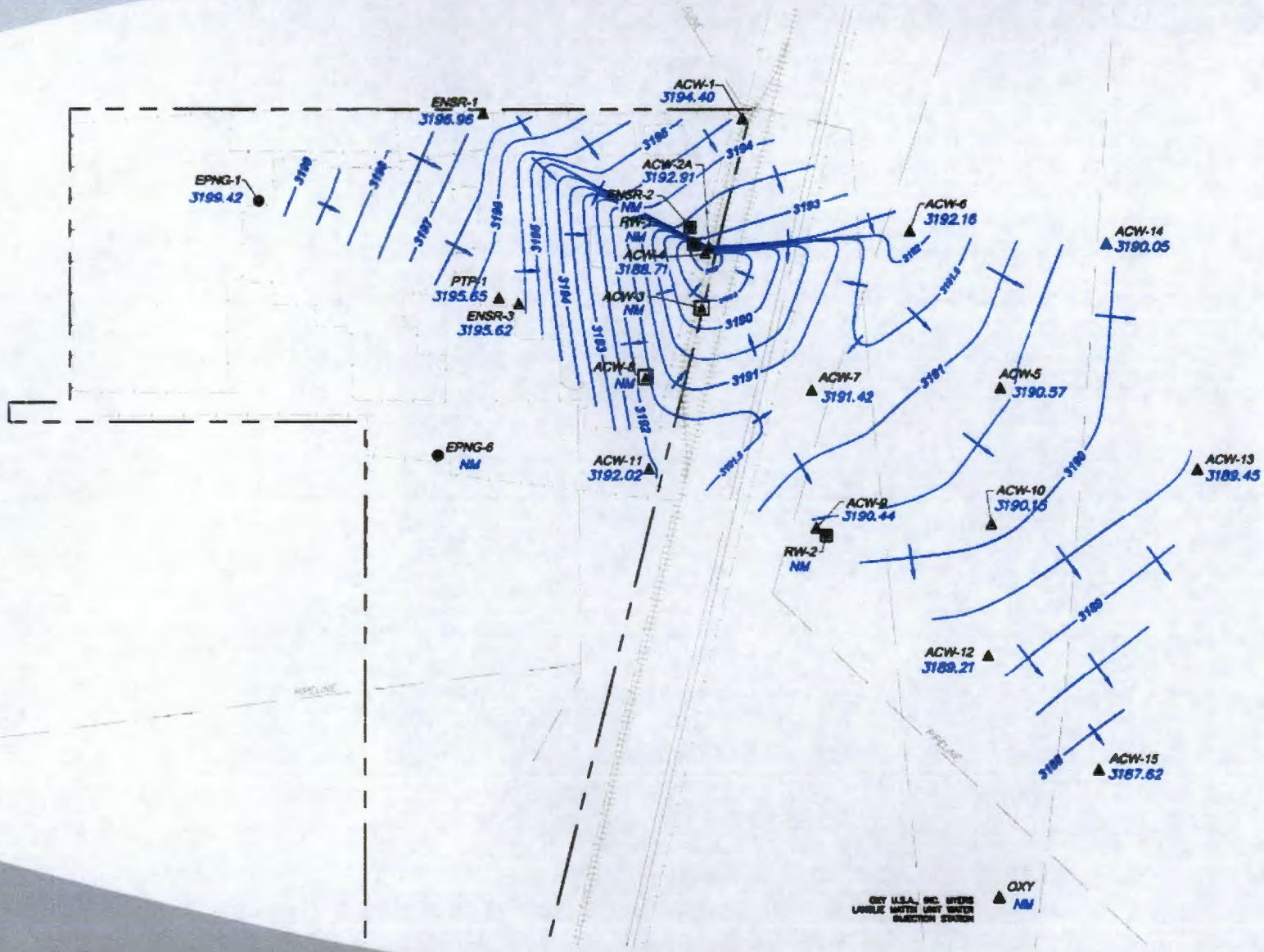
Site History
(continued)

- Subsequent to this discovery, numerous investigations have been conducted by EPNG at the Plant to characterize and delineate the affected groundwater plume.

- To date, 18 groundwater monitoring wells and 1 piezometer have been installed.

- In addition to these groundwater monitoring wells, 2 groundwater recovery wells (RW-1 and RW-2) have been installed, and 3 monitoring wells (ENSR-2, ACW-3 and ACW-8) have been converted to recover impacted groundwater and to prevent downgradient migration.

December 2010 Potentiometric Surface Map



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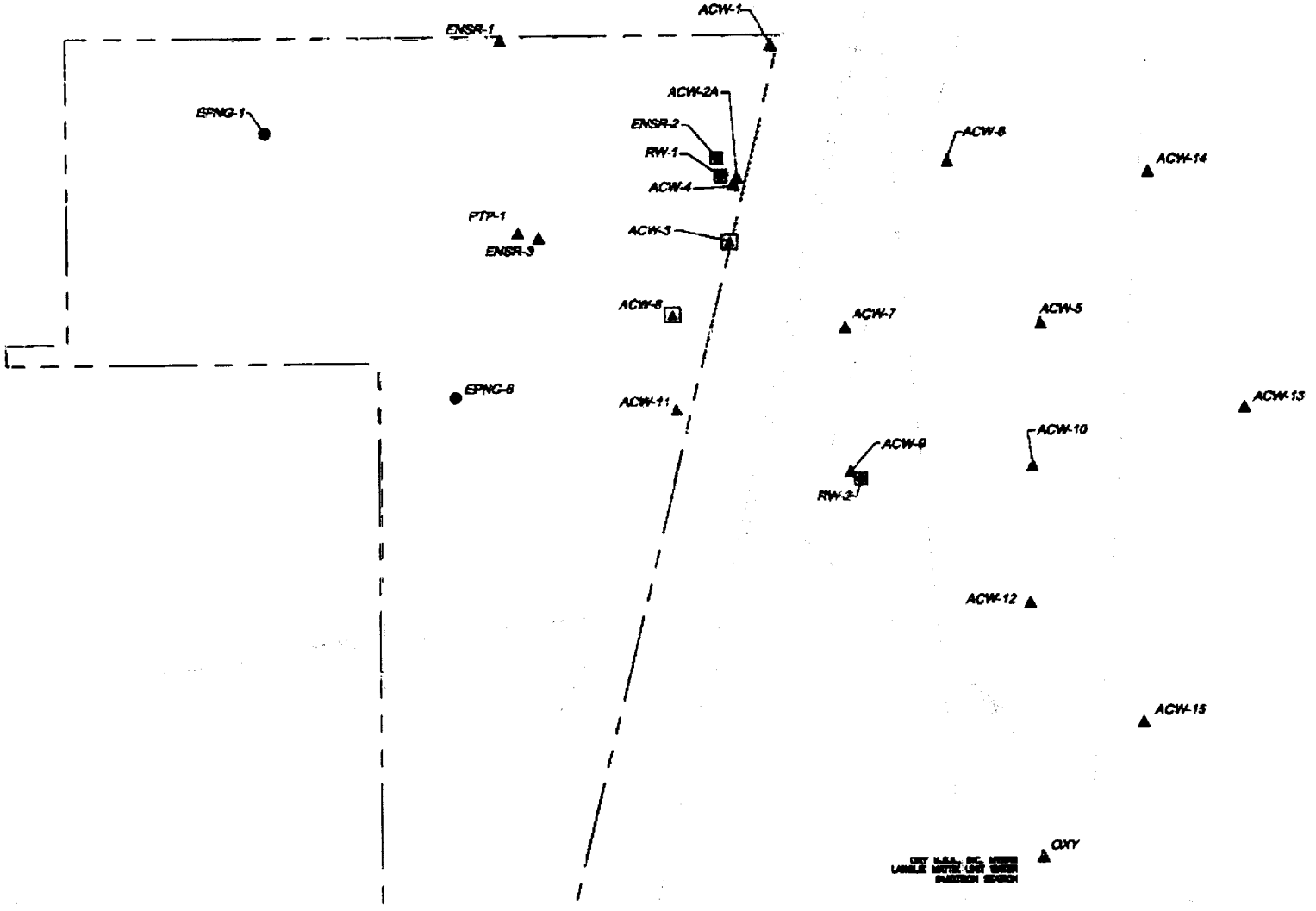
Current Groundwater Monitoring Program

- 1st Quarter - sample monitoring wells ACW-13, ACW-14 and ACW-15 and analyze for: benzene, toluene, ethylbenzene, and total xylenes (collectively referred to as BTEX), total dissolved solids (TDS), specific conductance, chloride and sodium.
- 2nd Quarter - sample monitoring wells ACW-13, ACW-14 and ACW-15 and analyze for: BTEX, TDS, specific conductance, chloride and sodium.
- 3rd Quarter - sample monitoring wells ACW-13, ACW-14 and ACW-15 and analyze for: BTEX, TDS, specific conductance, chloride and sodium.
- 4th Quarter - sample **all program and non-program monitoring wells** and analyze for: BTEX, TDS, specific conductance, chloride and sodium.
- Annual Report due to NMOCD on or before February 15th

Site Base Map - All Wells



Current Groundwater Monitoring Program Program Wells

Monitoring Well	Sampled Q1, Q2, Q3, and Q4	Sampled Q4 only
ACW-1		X
ACW-2A		X
ACW-3		X
ACW-4		X
ACW-5		X
ACW-6		X
ACW-7		X
ACW-8		X
ACW-9		X
ACW-10		X
ACW-11		X
ACW-12		X
ACW-13	X	
ACW-14	X	
ACW-15	X	

Current Groundwater Monitoring Program
Non-Program Wells

Well	Sampled Q1, Q2, Q3, and Q4	Sampled Q4 only
ENSR-1		X
ENSR-2		X
ENSR-3		X
EPNG-1		X
PTP-1		X
Oxy Production Well	Out of service in 2010	
Doom Production Well	X	

Results of Monitoring Activities Inorganic Constituents 2010

Monitoring Well	Concentration Trends		
	TDS	Chloride	Sodium
ACW-1	↓ (↓)	↓ (↓)	↓ (↓)
ACW-2A	↓ (↓)	↔ (↔)	↓ (↓)
ACW-3	↔ (↔)	↔ (↓)	↔ (↔)
ACW-4	↓ (↓)	↓ (↓)	↓ (↓)
ACW-5	↑ (↔)	↑ (↑)	↔ (↔)
ACW-6	↓ (↓)	↓ (↓)	↓ (↓)
ACW-7	↑ (↑)	↑ (↑)	↔ (↔)
ACW-8	↔ (↓)	↓ (↓)	↔ (↔)
ACW-9	↑ (↑)	↑ (↔)	↑ (↔)
ACW-10	↑ (↑)	↑ (↔)	↔ (↔)
ACW-11	↑ (↔)	↑ (↔)	↑ (↔)
ACW-12	↑ (↑)	↑ (↑)	↔ (↔)
ACW-13	↑ (↑)	↑ (↑)	↔ (↔)
ACW-14	↔ (↔)	↔ (↔)	↔ (↔)
ACW-15	↔ (↔)	↔ (↔)	↔ (↔)

Key: ND denotes constituent not detected during the GMP, ↔ denotes no observable trend, ↓ denotes a decreasing trend, ↑ denotes an increasing trend.

Results of Monitoring Activities
Inorganic Constituents
2010

Monitoring Wells with Decreasing Overall Inorganic Levels

ACW-1	ACW-2A	ACW-4
ACW-6		

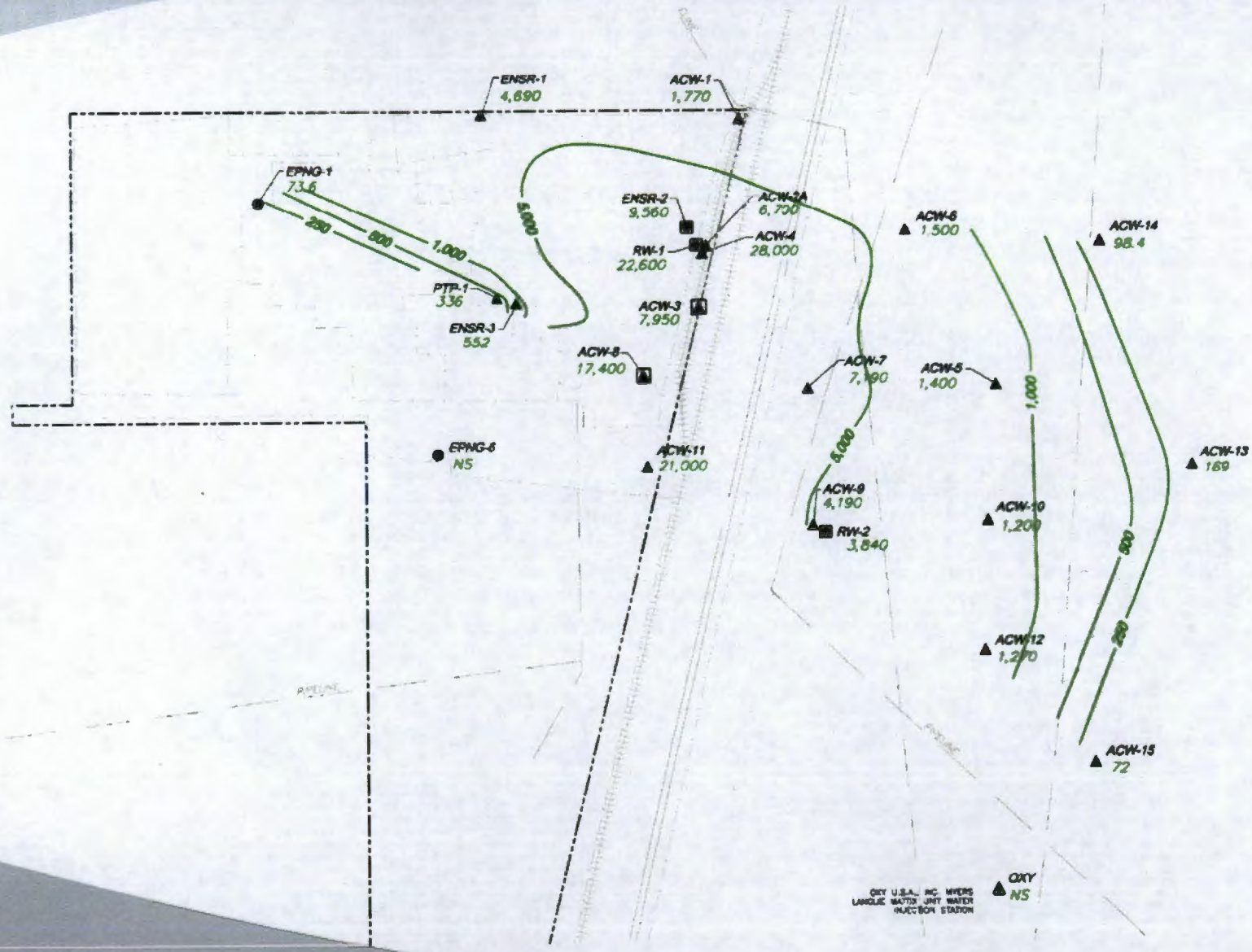
Monitoring Wells with Increasing Overall Inorganic Levels

ACW-5	ACW-7	ACW-9
ACW-10	ACW-11	ACW-12
ACW-13		

Monitoring Wells with No Observable Overall Inorganic Trend

ACW-3	ACW-8	ACW-14
ACW-15		

2010 Chloride Isopleth



Results of Monitoring Activities Organic Constituents 2010

Monitor Well	Benzene Concentration Trend
ACW-1	↓ (↔)
ACW-2A	↓ (↓)
ACW-3	↓ (↓)
ACW-4	↔ (↓)
ACW-5	↔ (↔)
ACW-6	↔ (↔)
ACW-7	↑ (↑)
ACW-8	↔ (↔)
ACW-9	↔ (↔)
ACW-10	↔ (↔)
ACW-11	↔ (↓)
ACW-12	↔ (↔)
ACW-13	↔ (↔)
ACW-14	↔ (↔)
ACW-15	↔ (↔)

Key: ND denotes constituent not detected during the GMP, ↔ denotes no observable trend, ↓ denotes a decreasing trend, ↑ denotes an increasing trend.

Results of Monitoring Activities
Organic Constituents
2010

Monitoring Wells with Decreasing Overall Organic Levels

ACW-1	ACW-2A	ACW-3

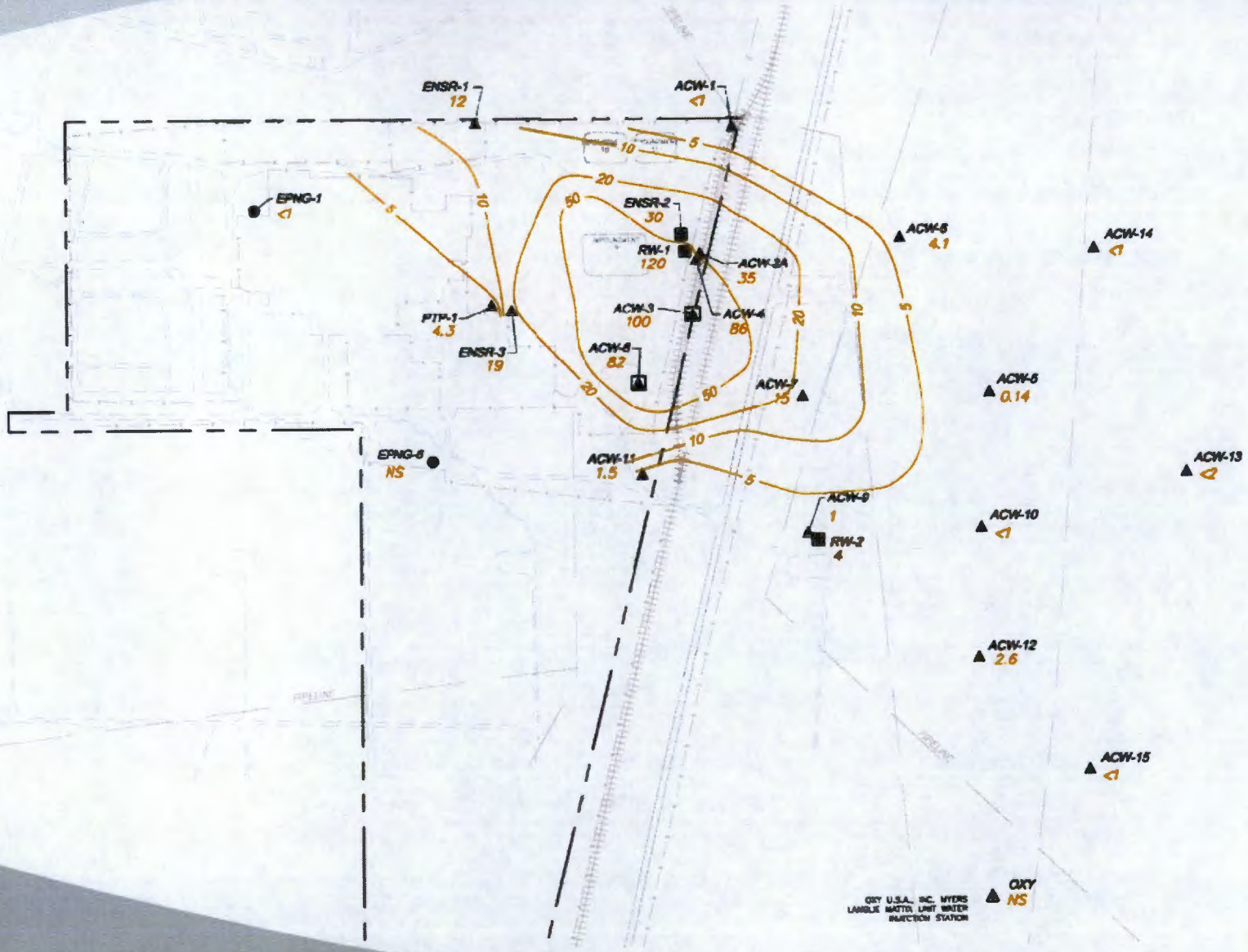
Monitoring Wells with Increasing Overall Organic Levels

ACW-7

Monitoring Wells with No Observable Overall Organic Trend

ACW-4	ACW-5	ACW-6
ACW-8	ACW-9	ACW-10
ACW-11	ACW-12	ACW-13
ACW-14	ACW-15	

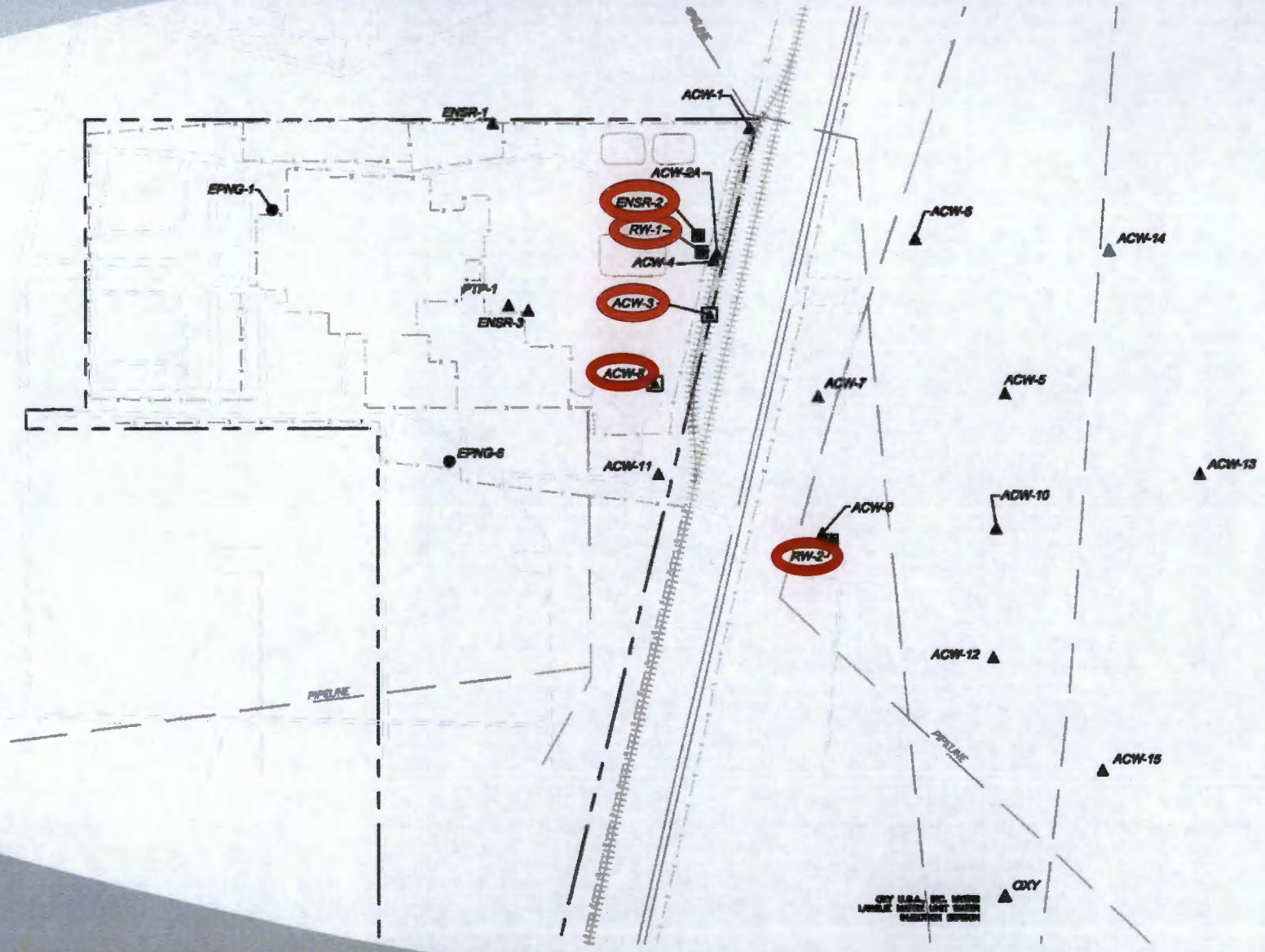
2010 Benzene Isopleth



Groundwater Remediation Program

- Continuous groundwater recovery was initiated in October 1999
- EPNG has obtained permission from the New Mexico State Engineers Office to withdraw a total of 125 acre feet per year from the following sources:
  - 35 acre feet per year from RW-1 (modified to include ENSR-2) effective June 1997
  - 35 acre feet per year from RW-2 effective June 1997
  - 20 acre feet per year from ACW-3 effective October 2005
  - 35 acre feet per year from ACW-8 effective October 2005

Site Base Map Emphasize Recovery Wells



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Groundwater Remediation Program

Groundwater Recovery Volumes

Year	RW-1 (gallons)	RW-2 (gallons)	ENSR-2 (gallons)	ACW-3 (gallons)	ACW-8 (gallons)	Total (gallons)	Total (acre-feet)
1999	319,280	0	0	0	0	319,280	1.0
2000	1,575,510	3,967385	780,240	0	0	6,323,135	19.4
2001	0	1,672,990	566,126	0	0	2,239,116	6.9
2002	267,869	2,919,520	1,675,670	0	0	4,863,059	14.92
2003	501,640	1,598,630	1,629,400	0	0	3,729,670	11.45
2004	1,241,510	2,029,620	1,130,850	0	0	4,401,980	13.51
2005	2,333,140	3,493,310	2,241,812	704,320	1,141,993	9,914,575	30.43
2006	2,367,970	1,205,100	2,151,020	1,725,100	2,293,637	9,742,827	29.90
2007	2,629,732	2,178,570	1,523,379	1,022,737	2,151,891	9,506,309	29.17
2008	3,204,015	2,245,830	338,730	941,069	2,800,513	9,530,157	29.25
2009	2,506,620	2,532,290	1,582,660	1,775,300	1,445,460	9,842,330	30.21
2010	1,687,110	2,109,680	792,970	1,530,130	1,292,650	7,412,540	22.75
Cumulative Total	**18,634,396**	**25,952,925**	**14,412,857**	**7,698,656**	**11,126,144**	**77,824,978**	**238.89**

Outstanding Items

- **IRP # 2026 – Remedial Action Plan for Brine Impacted Soil**

- **1RP-04-01-2697 – Remedial Action Plan for Chloride Impacted Soil**

Outstanding Items
(continued)

IRP # 2026 – Remedial Action Plan for Brine Impacted Soil

- On October 27, 2008 a filter housing integral to groundwater remediation/disposal system failed resulting in a release of high-chloride water east/southeast of filter building.
- Approximately 35 barrels of water released. Approximately 25 barrels were recovered utilizing a vac-truck.
- On November 5, 2008 EPNG submitted a Release Notification and Corrective Action Form C-141 to NMOCD.

Outstanding Items
(continued)

IRP # 2026 - February 3-4, 2009 – Release area investigated

- Ten soil borings were installed to a depth of 3 feet bgl.
- Soil samples were taken during each one-foot interval of each soil boring.
  - Field EC measurements were obtained from each interval. Three of the 30 soil samples collected for field EC measurements contained EC values greater than 4 mS/cm.
  - 24 of 30 samples submitted to the analytical laboratory contained EC results greater than 4 mmhos/cm.
  - Headspace of each soil sample was evaluated with an OVM. The highest OVM reading from each sample interval within each boring was submitted to the analytical laboratory for BTEX analysis. BTEX concentrations of the 10 samples did not exceed the NWOCD action levels.
- Lateral and vertical extent of the brine impacted soils was not delineated during this investigation.

Outstanding Items
(continued)

IRP # 2026 - May 5-7, 2009 – Release area further investigated

- 25 soil borings installed, ranging in depth from 1 to 8 feet bgl.
- Soil samples collected on 1 foot intervals, a total of 128 soil samples were collected.
  - A total of 113 soil samples were submitted to the analytical laboratory for EC analysis.
  - 53 of 113 soil samples exhibited laboratory EC levels greater than 4 mmhos/cm.

Outstanding Items
(continued)

IRP # 2026 - July 2009 – Chloride Results

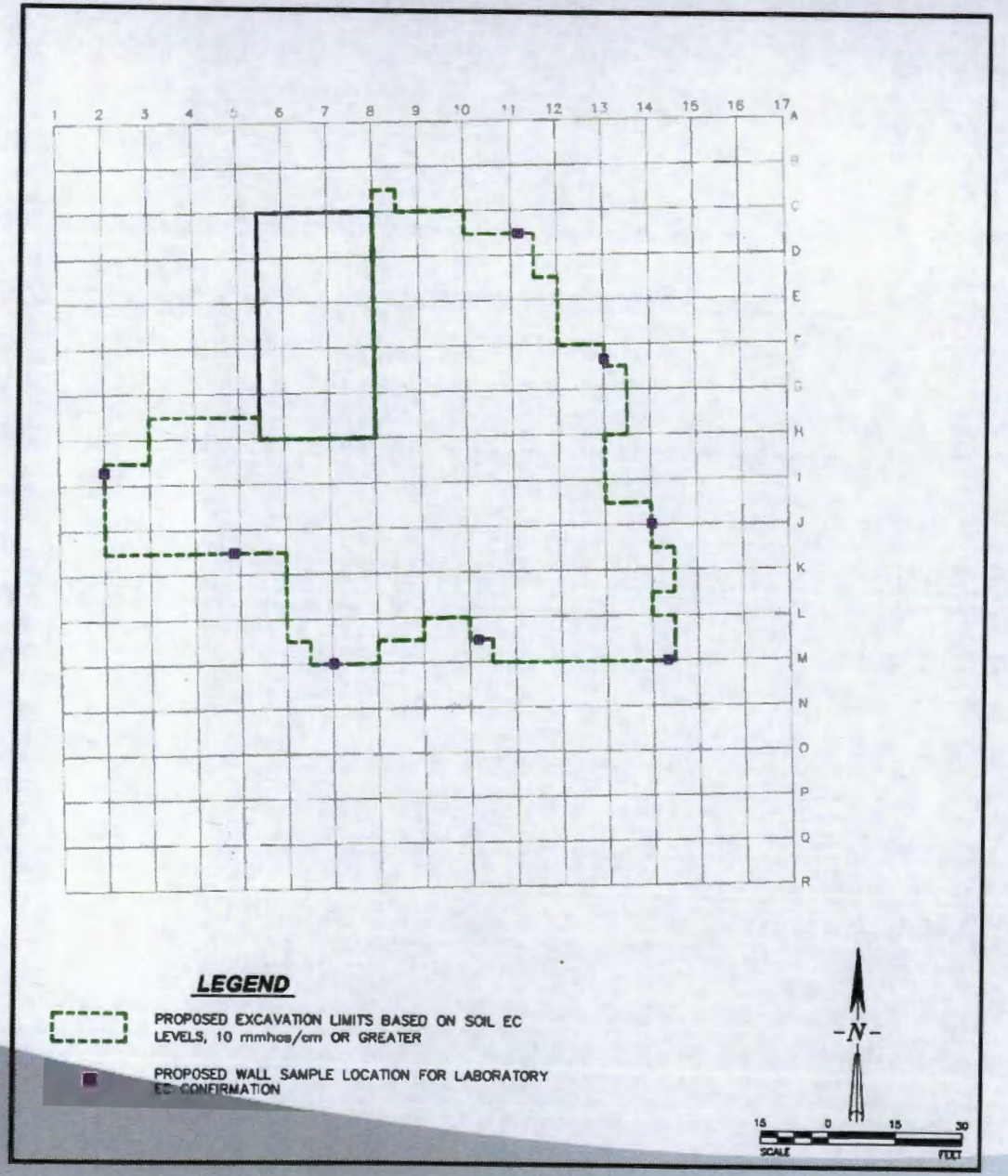
- At the request of the NMOCD, 8 soils samples were selected and analyzed for chloride to determine if there was an observable relationship between the soil EC and the chloride concentration.
- No apparent correlation between the soil EC levels and chloride concentration was observed.

Outstanding Items
(continued)

IRP # 2026

- November 6, 2009 – Remedial Action Plan (RAP) for Brine Impacted Soil Submitted to NMOCD.
- The remedial action is to excavate and remove the soils from the affected area exhibiting EC values greater than 10 mmhos/cm.
  - EC Value of 10 mmhos/cm was selected as the cleanup level because the Site is not suitable for cultivation and because the native plant species present are salt tolerant.
- RAP proposes that approximately 450 cubic yards of impacted soil be excavated and backfilled.

IRP #2026 - Proposed Excavation Areas



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Outstanding Items
(continued)

1RP-04-01-2697 - Remedial Action Plan for Chloride Impacted Soil

- On October 16, 2010 a pipe broke between the check-valve and cut-off valve located on the discharge line associated with groundwater recovery well RW-2.
  - Estimated 71 barrels of water released.
  - The recovered groundwater release encompassed an approximate 20 feet by 20 feet area.
  - October 20, 2010 EPNG submitted a Release Notification and Corrective Action Form C-141 to NMOCD.

Outstanding Items
(continued)

1RP-04-01-2697 - January 2011 – Release area investigated

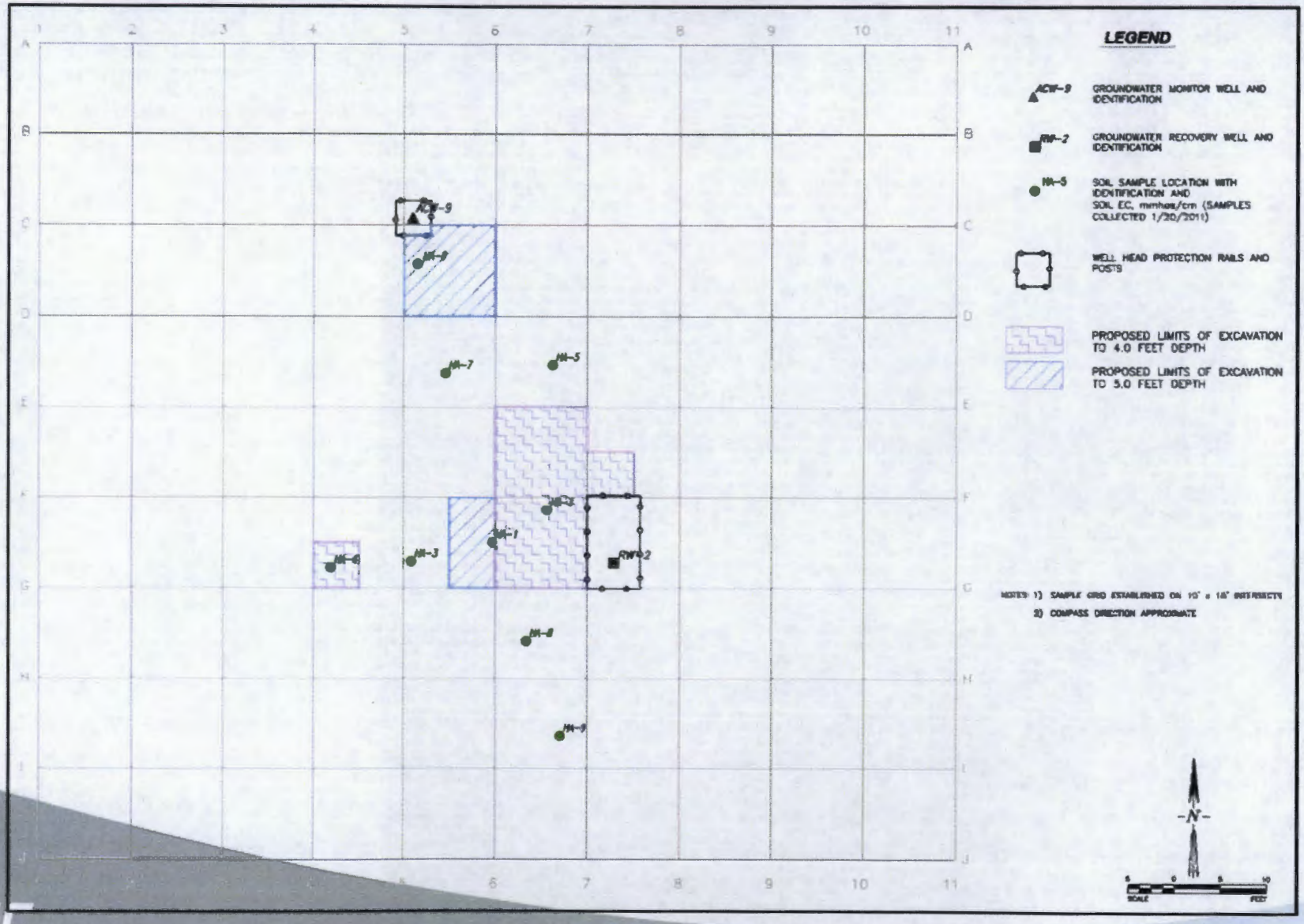
- Installed 9 soil borings to 5 feet bgl.
- Soils samples collected from each of the 9 soil borings, on one-foot intervals
  .
- Field EC measurements were obtained from each interval. None of the soil samples collected for field EC measurements contained EC values greater than 4 mS/cm.
- Six of 45 samples submitted to the analytical laboratory contained EC results greater than 4 mmhos/cm.
- Headspace of each soil sample was evaluated with an OVM. The highest OVM measurement from each sample interval within each boring was submitted to the analytical laboratory for BTEX analysis. No concentration of BTEX was observed in the 9 soil samples submitted.

Outstanding Items
(continued)

1RP-04-01-2697

- April 22, 2011– Remedial Action Plan (RAP) for Chloride Impacted Soil Submitted to NMOCD.
- The remedial action is to excavate and remove the soils from the affected area exhibiting EC values great than 4 mmhos/cm.
- RAP proposes that approximately 65 cubic yards of impacted soil be excavated and backfilled.

1RP-04-01-2697
Proposed Excavation Areas



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