1R - 344

APPROVALS

YEAR(S):

2002 - 2001

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
BETTY RIVERA
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

August 2, 2002

CERTIFIED MAIL
RETURN RECEIPT NO. 7001-1940-0004-7923—0506

Mr. R.W. Massey
Chevron USA Production Company
P.O. Box 1949
Eunice, New Mexico 88231

RE: CASE # 1R-0344
EAST GRIMES BATTERY #2
HOBBS, NEW MEXICO

Dear Mr. Massey:

The New Mexico Oil Conservation Division (OCD) has completed a review of Chevron USA Production Company's (Chevron) February 7, 2002 correspondence, September 14, 2001 "CHEVRON USA, COLEMAN STREET REMEDIATION/CLEANUP WORK PLAN, LEA COUNTY, NEW MEXICO" and August 27, 2001 "CHEVRON USA, COLEMAN/GRIMES SITE INVESTIGATION, LEA COUNTY, NEW MEXICO" which were submitted on behalf of Chevron by their consultant Safety & Environmental Solutions, Inc. These documents present the results of Chevron's investigation of the extent and magnitude of soil contamination at the former East Grimes Battery #2 located in the NE/4 of Section 33, Township 18 South, Range 38 East, Hobbs, New Mexico. The documents also contain a work plan for remediation of contaminated soils at the site.

The above-referenced remediation work plan is approved with the following conditions:

1. All final confirmation soil samples shall be obtained and analyzed using EPA approved methods and quality assurance/quality control (QA/QC) procedures.

2. The final closure report shall be submitted to the OCD Santa Fe Office by October 31, 2002 with a copy provided to the OCD Hobbs District Office. The report shall contain:

   a. A description of the remediation activities which occurred including conclusions and recommendations.

b. A site map showing the tank battery locations, spill areas, sample locations, soil excavations pipelines and any other pertinent site features.

c. Summary tables of all soil sampling results and copies of all laboratory analytical data sheets and associated QA/QC data.

d. The volumes of soil excavated from each area.

e. The disposition of all wastes generated.

3. Chevron shall notify the OCD at least 48 hours in advance of all scheduled activities such that the OCD has the opportunity to witness the events and split samples.

Please be advised that OCD approval does not limit Chevron to the proposed work plan should the plan fail to adequately remediate contamination at the site, or if contamination exists which is outside the scope of the plan. In addition, OCD approval does not relieve Chevron of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please contact me at (505) 476-3491.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor
Glen Houston, G. Houston Associates
Bob Allen, Safety & Environmental Solutions, Inc.

P.O. Box 1613
703 E. Clinton Suite 102
Hobbs, New Mexico 88240
505/397-0510
Fax 505/393-4388
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Safety & Environmental Solutions, Inc.

February 7, 2002

Mr. Bill Olsen
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Bill:

This letter is in response to your letter requesting additional information on Case #1R-344, East Grimes Battery # 2. I will address the technical basis and health based criteria for the conclusion that the metal concentrations detected at this site would not be harmful to the public and I have enclosed a revised site plan map labeling the boreholes installed at the site.

The metals that were detected at this site were a result of the sampling required by your office in your letter of July 26, 2001. Surface (0-6") samples were obtained from the center of each quadrant and at the most visibly stained area in each quadrant. The results of the analysis are summarized below:

Center of Quadrant

LOCATION	DEPTH	AS	AG	BA	CD	CR	PB	HG	SE
CTR SE 1/4	0-6"	2.87	.043	<5	.034	4.05	<1	0.011	<0.02
CTR SW 1/4	0-6"	1.63	9.5	17.3	0.41	4.62	<1	0.003	<0.02
CTR NE 1/4	0-6"	2.31	5.6	43.1	0.40	4.12	<1	0.011	<0.02
CTR NW 1/4	0-6"	3.02	0.95	431	0.49	3.97	<1	<0.02	0.054

The metals analysis which yielded elevated levels are Arsenic, Barium, Cadmium, Chromium and Silver. The EPA method used for the analysis was for totals rather than TCLP. It should also be noted that the samples were grab samples and not composite samples.

Most Visibly Stained in Each Quadrant

LOCATION	DEPTH	AS	AG	BA	CD	CR	PB	HG	SE
NE ¼ #1	0-6"	1.90	<0.5	12.8	0.48	4.08	<1	<0.02	0.124
NW ¼ #1	0-6"	2.36	<0.5	22.7	6.02	4.50	<1	<0.02	0.037
SE ¼ #1	0-6"	1.04	<0.5	26.5	0.50	3.66	<1	<0.02	<0.02
SE ¼ #1	0-6"	1.69	<0.5	34.3	0.5	4.18	<1	<0.02	<0.02

The metals analyses, which yielded elevated levels from the most visibly stained locations, are Arsenic, Barium, Cadmium, and Chromium. The EPA method used for the analysis was for totals rather than TCLP. It should also be noted that these samples were also grab samples and not composite samples.

The Environmental Protection Agency (EPA) has developed a tool to help standardize and accelerate the evaluation and cleanup of contaminate soils at sites on the National Priorities List (NPL) with residential land use. This tool is the Soil Screening Guidance. This guidance provides a methodology for environmental professionals to calculate risk-based, site-specific, soil screening levels (SSLs) for contaminants in soil in order to identify areas needing further investigation. SSLs are not not national cleanup standards nor do they alone trigger the need for cleanup action or define unacceptable levels of contamination in soil. Generally, at sites where contaminant levels fall below SSLs, no further action or study is warranted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Generally, where contaminant concentrations equal or exceed SSLs, further study or investigation, but not necessarily cleanup is warranted.

The Soil Screening Guidance document may be found in Publication 9355.4-23 July 1996, Second Edition. This document, along with the Technical Background Document (TBD) (EPA 1996) provides information on the application of a simple site-specific approach by providing a step-by-step methodology to calculate site-specific SSLs. The TBD provides generic SSLs for the most common contaminants found at NPL sites. Generic SSLs are guidance, but are based on a number of default assumptions chosen to be protective of human health for most site conditions. Generic SSLs can be used in place of site-specific screening levels; however, in general, they are expected to be more conservative that site-specific levels.

The scope of the Soil Screening Guidance includes direct ingestion, inhalation of volatiles and fugitive dusts, ingestion of contaminate ground water, dermal absorption, ingestion of homegrown produce, and migration of volatiles into basements as potential exposure pathways. The first three pathways are the most common routes of human exposure in residential areas.

In the case of the Coleman Street site, we have elected to apply the Generic SSLs listed in the TBD for the contaminants of Arsenic, Cadmium, and Chromium rather than calculate site-specific SSLs. It should be noted the Generic SSLs listed in the TBD, are meant to be the mean level of contamination for the entire site. The appropriate sampling method for the determination of a mean level of contamination would be a composite sampling plan. However, the samples taken at the Coleman Street site were grab samples taken at specific points at your direction. High contaminant levels in grab samples may not be indicative of the mean level of contamination and the highest levels of the grab samples may well be above the mean level for the site. This assumption is applied to the Coleman Street grab samples. We believe that if the site was composited by quadrant, the composite samples would more closely approximate the mean contaminate level and be well under the Generic SSLs.

The following table will compare the highest grab sample concentration to the Generic SSL for each contaminant:

Contaminate	Sample Description	Sample Result (ppm)	Generic SSL Ingestion (mg/kg)	Generic SSL Inhalation (mg/kg)
Arsenic	CTR NW 1/4	3.02	0.4	750
Barium	CTR NW 1/4	431	5,500	6.9e+05
Cadmium	NW ¼ #1	6.02	78	1,800
Chromium	CTR SW 1/4	4.62	390	270
Silver	CTR SW 1/4	9.5	390	--

When comparing the sample containing the highest level of each contaminate to the SSLs f or ingestion and inhalation, only arsenic is above the SSL. Barium, Cadmium, Chromium and Silver are all below the SSL. Generally, these contaminates should not require further investigation nor cleanup.

The sample containing the highest level of Arsenic is approximately 7.5 time the ingestion SSL and well below the inhalation SSL. While further investigating the appropriate protective level of Arsenic, it was discovered that New Mexico has not adopted any risk-based levels such as the Generic SSLs, however, Texas has addressed residential soils in their Texas Risk Reduction Program (TRRP). The TRRP lists Risk-Base Exposure Limits (RBELs) in table form for residential land use

scenarios. The table is divided into size of source area. The listing in the .5 acres source area section for Arsenic is 24, 25, and 25 mg/kg for the total soil combination, groundwater ingestion and groundwater class 3 routes of exposure. The Coleman Street site sample is well below the levels used in the TRRP.

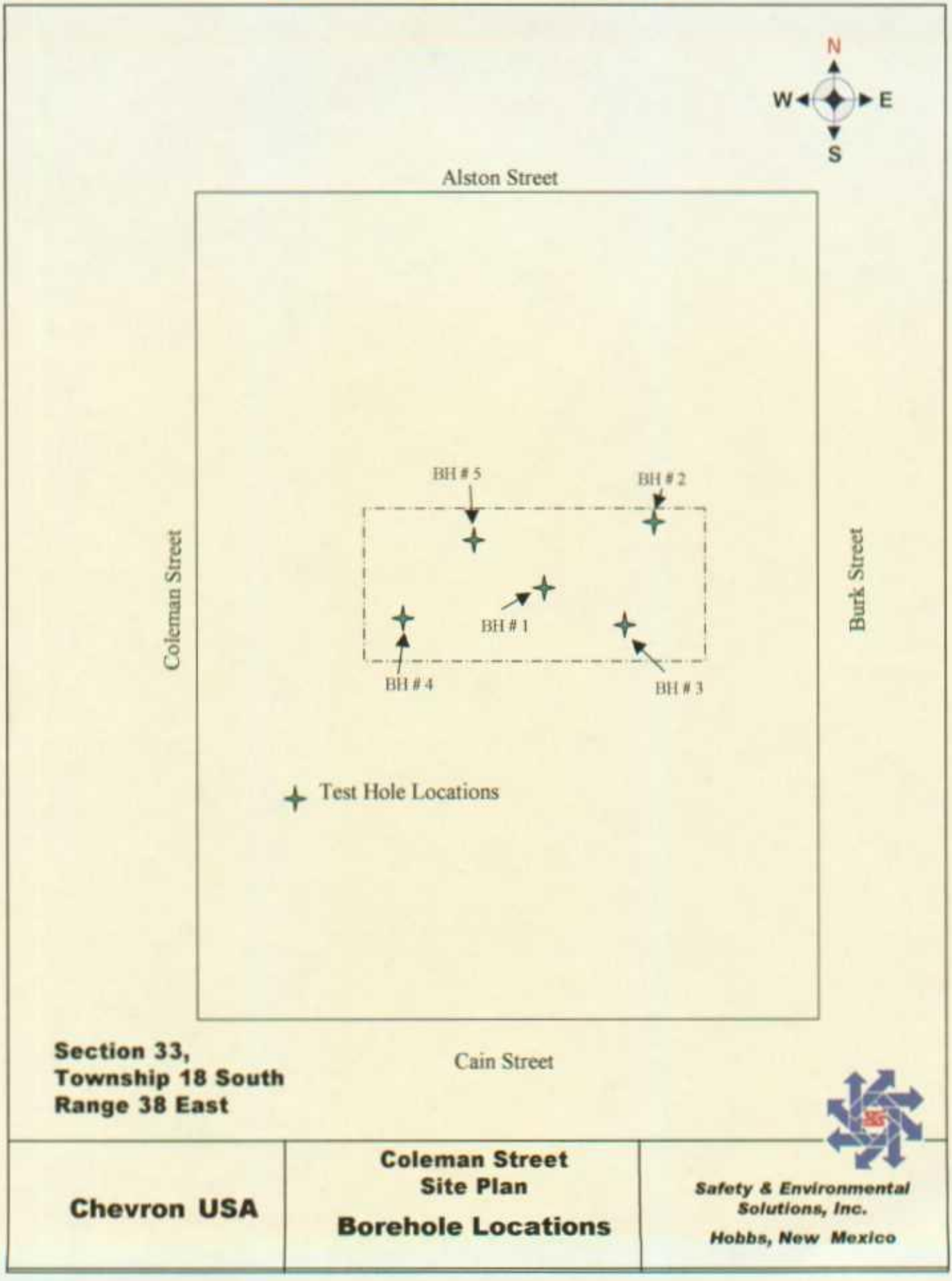
The foregoing discussion is the rationale that led to the statement made in the investigation report that the levels of metals found posed no threat to the public.

At this time, Chevron requests permission to proceed with the submitted work plan in order to complete this project as soon as possible.

If you have any questions, or I can be of further assistance please contact me at (505) 397-0510.

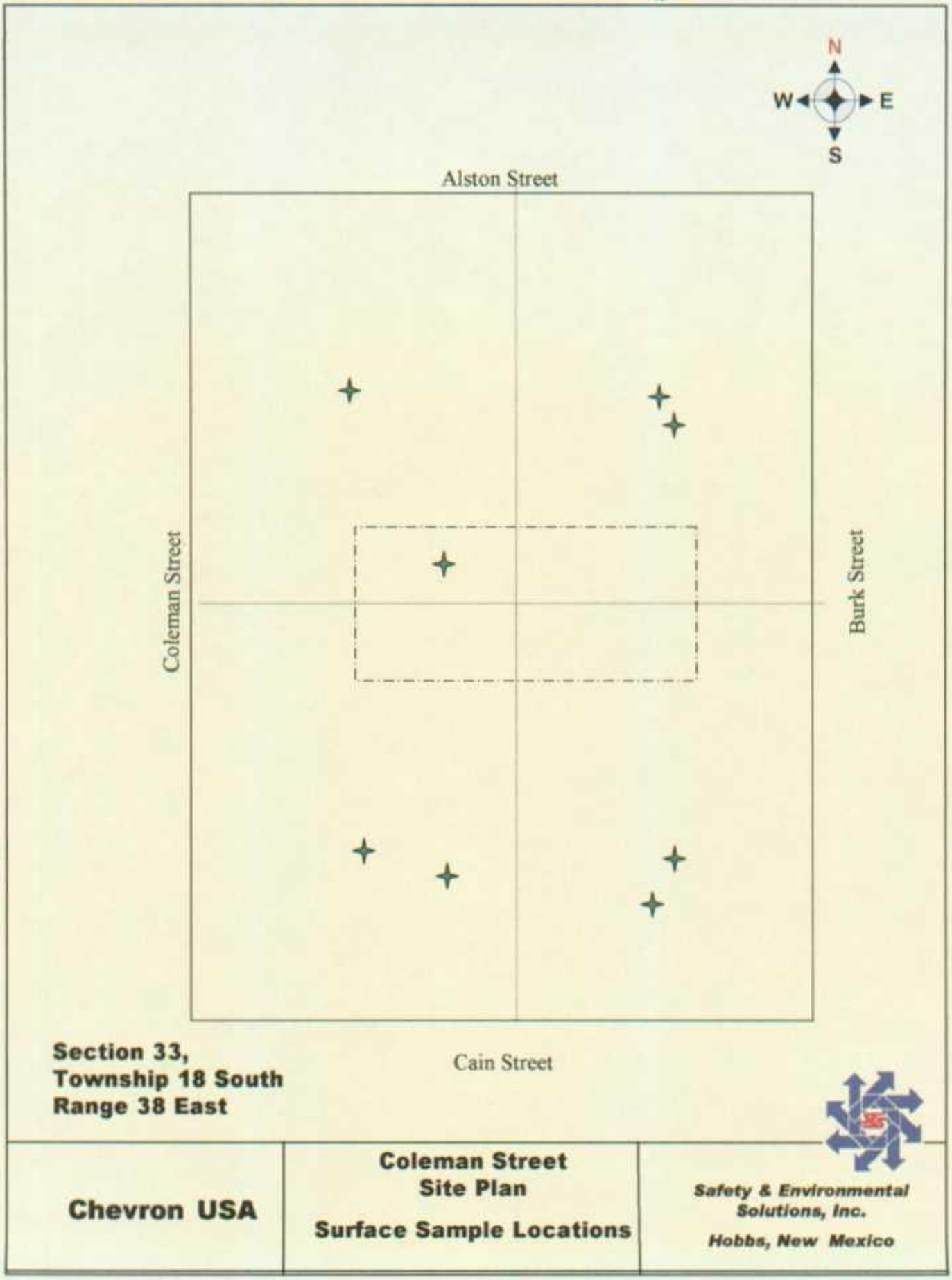
Sincerely,

Bob Allen CHMM, REM, CET, CES
President



Section 33,
Township 18 South
Range 38 East

Chevron USA	**Coleman Street Site Plan** **Borehole Locations**	***Safety & Environmental Solutions, Inc.*** ***Hobbs, New Mexico***



Section 33,
Township 18 South
Range 38 East

Chevron USA	**Coleman Street** **Site Plan** **Surface Sample Locations**	***Safety & Environmental Solutions, Inc.*** ***Hobbs, New Mexico***

APPENDIX A

Generic SSLs

APPENDIX A

Generic SSLs

Table A-1 provides generic SSLs for 110 chemicals. Generic SSLs are derived using default values in the standardized equations presented in Part 2 of this document. The default values (listed in Table A-2) are conservative and are likely to be protective for the majority of site conditions across the nation.

However, the generic SSLs are not necessarily protective of all known human exposure pathways, reasonable land uses, or ecological threats. Thus, before applying generic SSLs at a site, it is extremely important to compare the conceptual site model (see the *User's Guide)* with the assumptions behind the SSLs to ensure that the site conditions and exposure pathways match those used to develop generic SSLs (see Parts 1 and 2 and Table A-2). If this comparison indicates that the site is more complex than the SSL scenario, or that there are significant exposure pathways **not** accounted for by the SSLs, then generic SSLs are not sufficient for a full evaluation of the site. A more detailed site-specific approach will be necessary to evaluate the additional pathways or site conditions.

Generic SSLs are presented separately for major pathways of concern in both surface and subsurface soils. The first column to the right of the chemical name presents levels based on direct ingestion of soil and the second column presents levels based on inhalation. As discussed in the *User's Guide*, the fugitive dust pathway may be of concern for certain metals but does not appear to be of concern for organic compounds. Therefore, SSLs for the fugitive dust pathway are only presented for inorganic compounds. Except for mercury, no SSLs for the inhalation of volatiles pathway are provided for inorganic compounds because these chemicals are not volatile.

The user should note that several of the generic SSLs for the inhalation of volatiles pathway are determined by the soil saturation concentration (C_{sat}), which is used to address and screen the potential presence of nonaqueous phase liquids (NAPLs). As explained in Section 2.4.4, for compounds that are liquid at ambient soil temperature, concentrations above C_{sat} indicate a potential for free-phase liquid contamination to be present and the need for additional investigation.

The third column presents generic SSL values for the migration to ground water pathway developed using a default DAF (dilution-attenuation factor) of 20 to account for natural processes that reduce contaminant concentrations in the subsurface (see Section 2.5.6). SSLs in Table A-1 are rounded to two significant figures except for values less than 10, which are rounded to one significant figure. Note that the 20 DAF values in Table A-1 are not exactly 20 times the 1 DAF values because each SSL is calculated independently in both the 20 DAF and 1 DAF columns, with the final value presented according to the aforementioned rounding conventions.

The fourth column contains the generic SSLs for the migration to ground water pathway developed assuming no dilution or attenuation between the source and the receptor well (i.e., a DAF of 1). These values can be used at sites where little or no dilution or attenuation of soil leachate concentrations is expected at a site (e.g., sites with shallow water tables, fractured media, karst topography, or source size greater than 30 acres).

Generally, if an SSL is not exceeded for a pathway of concern, the user may eliminate the pathway or areas of the site from further investigation. If more than one exposure pathway is of concern, the lowest SSL should be used.

Table A-1. Generic SSLs [a]

Organics				Migration to ground water	
CAS No.	Compound	Ingestion (mg/kg)	Inhalation volatiles (mg/kg)	20 DAF (mg/kg)	1 DAF (mg/kg)
83-32-9	Acenaphthene	4,700 [b]	--- [c]	570 [b]	29 [b]
67-64-1	Acetone	7,800 [b]	1.0E+05 [d]	16 [b]	0.8 [b]
309-00-2	Aldrin	0.04 [e]	3 [e]	0.5 [e]	0.02 [e]
120-12-7	Anthracene	23,000 [b]	--- [c]	12,000 [b]	590 [b]
56-55-3	Benz(*a*)anthracene	0.9 [e]	--- [c]	2 [e]	0.08 [e,f]
71-43-2	Benzene	22 [e]	0.8 [e]	0.03	0.002 [f]
205-99-2	Benzo(*b*)fluoranthene	0.9 [e]	--- [c]	5 [e]	0.2 [e,f]
207-08-9	Benzo(*k*)fluoranthene	9 [e]	--- [c]	49 [e]	2 [e]
65-85-0	Benzoic acid	3.1E+05 [b]	--- [c]	400 [b,i]	20 [b,i]
50-32-8	Benzo(*a*)pyrene	0.09 [e,f]	--- [c]	8	0.4
111-44-4	Bis(2-chloroethyl)ether	0.6 [e]	0.2 [e,f]	0.0004 [e,f]	2E-05 [e,f]
117-81-7	Bis(2-ethylhexyl)phthalate	46 [e]	31,000 [d]	3,600	180
75-27-4	Bromodichloromethane	10 [e]	3,000 [d]	0.6	0.03
75-25-2	Bromoform	81 [e]	53 [e]	0.8	0.04
71-36-3	Butanol	7,800 [b]	10,000 [d]	17 [b]	0.9 [b]
85-68-7	Butyl benzyl phthalate	16,000 [b]	930 [d]	930 [d]	810 [b]
86-74-8	Carbazole	32 [e]	--- [c]	0.6 [e]	0.03 [e,f]
75-15-0	Carbon disulfide	7,800 [b]	720 [d]	32 [b]	2 [b]
56-23-5	Carbon tetrachloride	5 [e]	0.3 [e]	0.07	0.003 [f]
57-74-9	Chlordane	0.5 [e]	20 [e]	10	0.5
106-47-8	*p*-Chloroaniline	310 [b]	--- [c]	0.7 [b]	0.03 [b,f]
108-90-7	Chlorobenzene	1,600 [b]	130 [b]	1	0.07
124-48-1	Chlorodibromomethane	8 [e]	1,300 [d]	0.4	0.02
67-66-3	Chloroform	100 [e]	0.3 [e]	0.6	0.03
95-57-8	2-Chlorophenol	390 [b]	53,000 [d]	4 [b,i]	0.2 [b,f,i]
218-01-9	Chrysene	88 [e]	--- [c]	160 [e]	8 [e]
72-54-8	DDD	3 [e]	--- [c]	16 [e]	0.8 [e]
72-55-9	DDE	2 [e]	--- [c]	54 [e]	3 [e]
50-29-3	DDT	2 [e]	--- [g]	32 [e]	2 [e]
53-70-3	Dibenz(*a,h*)anthracene	0.09 [e,f]	--- [c]	2 [e]	0.08 [e,f]
84-74-2	Di-*n*-butyl phthalate	7,800 [b]	2,300 [d]	2,300 [d]	270 [b]
95-50-1	1,2-Dichlorobenzene	7,000 [b]	560 [d]	17	0.9
106-46-7	1,4-Dichlorobenzene	27 [e]	--- [g]	2	0.1 [f]
91-94-1	3,3-Dichlorobenzidine	1 [e]	--- [c]	0.007 [e,f]	0.0003 [e,f]
75-34-3	1,1-Dichloroethane	7,800 [b]	1,300 [b]	23 [b]	1 [b]
107-06-2	1,2-Dichloroethane	7 [e]	0.4 [e]	0.02	0.001 [f]
75-35-4	1,1-Dichloroethylene	1 [e]	0.07 [e]	0.06	0.003 [f]
156-59-2	*cis*-1,2-Dichloroethylene	780 [b]	1,200 [d]	0.4	0.02
156-60-5	*trans*-1,2-Dichloroethylene	1,600 [b]	3,100 [d]	0.7	0.03
120-83-2	2,4-Dichlorophenol	230 [b]	--- [c]	1 [b,i]	0.05 [b,f,i]

Table A-1 (continued)

Organics				Migration to ground water	
CAS No.	Compound	Ingestion (mg/kg)	Inhalation volatiles (mg/kg)	20 DAF (mg/kg)	1 DAF (mg/kg)
78-87-5	1,2-Dichloropropane	9 [e]	15 [b]	0.03	0.001 [f]
542-75-6	1,3-Dichloropropene	4 [e]	0.1 [e]	0.004 [e]	0.0002 [e]
60-57-1	Dieldrin	0.04 [e]	1 [e]	0.004 [e]	0.0002 [e,f]
84-66-2	Diethylphthalate	63,000 [b]	2,000 [d]	470 [b]	23 [b]
105-67-9	2,4-Dimethylphenol	1,600 [b]	--- [c]	9 [b]	0.4 [b]
51-28-5	2,4-Dinitrophenol	160 [b]	--- [c]	0.3 [b,f,i]	0.01 [b,f,i]
121-14-2	2,4-Dinitrotoluene	0.9 [e]	--- [c]	0.0008 [e,f]	4E-05 [e,f]
606-20-2	2,6-Dinitrotoluene	0.9 [e]	--- [c]	0.0007 [e,f]	3E-05 [e,f]
117-84-0	Di-*n*-octyl phthalate	1,600 [b]	10,000 [d]	10,000 [d]	10,000 [d]
115-29-7	Endosulfan	470 [b]	--- [c]	18 [b]	0.9 [b]
72-20-8	Endrin	23 [b]	--- [c]	1	0.05
100-41-4	Ethylbenzene	7,800 [b]	400 [d]	13	0.7
206-44-0	Fluoranthene	3,100 [b]	--- [c]	4,300 [b]	210 [b]
86-73-7	Fluorene	3,100 [b]	--- [c]	560 [b]	28 [b]
76-44-8	Heptachlor	0.1 [e]	4 [e]	23	1
1024-57-3	Heptachlor epoxide	0.07 [e]	5 [e]	0.7	0.03
118-74-1	Hexachlorobenzene	0.4 [e]	1 [e]	2	0.1 [f]
87-68-3	Hexachloro-1,3-butadiene	8 [e]	8 [e]	2	0.1 [f]
319-84-6	α-HCH (α-BHC)	0.1 [e]	0.8 [e]	0.0005 [e,f]	3E-05 [e,f]
319-85-7	β-HCH (β-BHC)	0.4 [e]	--- [g]	0.003 [e]	0.0001 [e,f]
58-89-9	γ-HCH (Lindane)	0.5 [e]	--- [c]	0.009	0.0005 [f]
77-47-4	Hexachlorocyclopentadiene	550 [b]	10 [b]	400	20
67-72-1	Hexachloroethane	46 [e]	55 [e]	0.5 [e]	0.02 [e,f]
193-39-5	Indeno(1,2,3-*cd*)pyrene	0.9 [e]	--- [c]	14 [e]	0.7 [e]
78-59-1	Isophorone	670 [e]	4,600 [d]	0.5 [e]	0.03 [e,f]
7439-97-6	Mercury	23 [b,l]	10 [b,i]	2 [i]	0.1 [i]
72-43-5	Methoxychlor	390 [b]	--- [c]	160	8
74-83-9	Methyl bromide	110 [b]	10 [b]	0.2 [b]	0.01 [b,f]
75-09-2	Methylene chloride	85 [e]	13 [e]	0.02 [e]	0.001 [e,f]
95-48-7	2-Methylphenol	3,900 [b]	--- [c]	15 [b]	0.8 [b]
91-20-3	Naphthalene	3,100 [b]	--- [c]	84 [b]	4 [b]
98-95-3	Nitrobenzene	39 [b]	92 [b]	0.1 [b,f]	0.007 [b,f]
86-30-6	*N*-Nitrosodiphenylamine	130 [e]	--- [c]	1 [e]	0.06 [e,f]
621-64-7	*N*-Nitrosodi-*n*-propylamine	0.09 [e,f]	--- [c]	5E-05 [e,f]	2E-06 [e,f]
1336-36-3	PCBs	1 [h]	--- [h]	--- [h]	--- [h]
87-86-5	Pentachlorophenol	3 [e,j]	--- [c]	0.03 [f,i]	0.001 [f,i]
108-95-2	Phenol	47,000 [b]	--- [c]	100 [b]	5 [b]
129-00-0	Pyrene	2,300 [b]	--- [c]	4,200 [b]	210 [b]
100-42-5	Styrene	16,000 [b]	1,500 [d]	4	0.2
79-34-5	1,1,2,2-Tetrachloroethane	3 [e]	0.6 [e]	0.003 [e,f]	0.0002 [e,f]

Table A-1 (continued)

Organics				Migration to ground water	
CAS No.	Compound	Ingestion (mg/kg)	Inhalation volatiles (mg/kg)	20 DAF (mg/kg)	1 DAF (mg/kg)
127-18-4	Tetrachloroethylene	12 [e]	11 [e]	0.06	0.003 [f]
108-88-3	Toluene	16,000 [b]	650 [d]	12	0.6
8001-35-2	Toxaphene	0.6 [e]	89 [e]	31	2
120-82-1	1,2,4-Trichlorobenzene	780 [b]	3,200 [d]	5	0.3 [f]
71-55-6	1,1,1-Trichloroethane	--- [c]	1,200 [d]	2	0.1
79-00-5	1,1,2-Trichloroethane	11 [e]	1 [e]	0.02	0.0009 [f]
79-01-6	Trichloroethylene	58 [e]	5 [e]	0.06	0.003 [f]
95-95-4	2,4,5-Trichlorophenol	7,800 [b]	--- [c]	270 [b,i]	14 [b,i]
88-06-2	2,4,6-Trichlorophenol	58 [e]	200 [e]	0.2 [e,f,i]	0.008 [e,f,i]
108-05-4	Vinyl acetate	78,000 [b]	1,000 [b]	170 [b]	8 [b]
75-01-4	Vinyl chloride	0.3 [e]	0.03 [e]	0.01 [f]	0.0007 [f]
108-38-3	*m*-Xylene	1.6E+05 [b]	420 [d]	210	10
95-47-6	*o*-Xylene	1.6E+05 [b]	410 [d]	190	9
106-42-3	*p*-Xylene	1.6E+05 [b]	460 [d]	200	10

Table A-1 (continued)

Inorganics				Migration to ground water	
CAS No.	Compound	Ingestion (mg/kg)	Inhalation fugitive particulate (mg/kg)	20 DAF (mg/kg)	1 DAF (mg/kg)
7440-36-0	Antimony	31 [b]	--- [c]	5	0.3
7440-38-2	Arsenic	0.4 [e]	750 [e]	29 [i]	1 [i]
7440-39-3	Barium	5,500 [b]	6.9E+05 [b]	1,600 [i]	82 [i]
7440-41-7	Beryllium	0.1 [e]	1,300 [e]	63 [i]	3 [i]
7440-43-9	Cadmium	78 [b,m]	1,800 [e]	8 [i]	0.4 [i]
7440-47-3	Chromium (total)	390 [b]	270 [e]	38 [i]	2 [i]
16065-83-1	Chromium (III)	78,000 [b]	--- [c]	--- [g]	--- [g]
18540-29-9	Chromium (VI)	390 [b]	270 [e]	38 [i]	2 [i]
57-12-5	Cyanide (amenable)	1,600 [b]	--- [c]	40	2
7439-92-1	Lead	400 [k]	--- [k]	--- [k]	--- [k]
7440-02-0	Nickel	1,600 [b]	13,000 [e]	130 [i]	7 [i]
7782-49-2	Selenium	390 [b]	--- [c]	5 [i]	0.3 [i]
7440-22-4	Silver	390 [b]	--- [c]	34 [b,i]	2 [b,i]
7440-28-0	Thallium	--- [c]	--- [c]	0.7 [i]	0.04 [i]
7440-62-2	Vanadium	550 [b]	--- [c]	6,000 [b]	300 [b]
7440-66-6	Zinc	23,000 [b]	--- [c]	12,000 [b,i]	620 [b,i]

DAF = Dilution and attenuation factor.

[a] Screening levels based on human health criteria only.

[b] Calculated values correspond to a noncancer hazard quotient of 1.

[c] No toxicity criteria available for that route of exposure.

[d] Soil saturation concentration (C_{sat}).

[e] Calculated values correspond to a cancer risk level of 1 in 1,000,000.

[f] Level is at or below Contract Laboratory Program required quantitation limit for Regular Analytical Services (RAS).

[g] Chemical-specific properties are such that this pathway is not of concern at any soil contaminant concentration.

[h] A preliminary remediation goal of 1 mg/kg has been set for PCBs based on *Guidance on Remedial Actions for Superfund Sites with PCB Contamination* (U.S. EPA, 1990) and on EPA efforts to manage PCB contamination.

[i] SSL for pH of 6.8.

[j] Ingestion SSL adjusted by a factor of 0.5 to account for dermal exposure.

[k] A screening level of 400 mg/kg has been set for lead based on *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities* (U.S. EPA, 1994).

[l] SSL is based on RfD for mercuric chloride (CAS No. 007487-94-7).

[m] SSL is based on dietary RfD.

Table A-2. Generic SSLs: Default Parameters and Assumptions

Parameter	SSL pathway: Inhalation	SSL pathway: Migration to ground water	Default
Source Characteristics			
Continuous vegetative cover	●		50 percent
Roughness height	○		0.5 cm for open terrain; used to derive $U_{t,7}$
Source area (A)	●	○	0.5 acres (2,024 m^2); used to derive L for MTG
Source length (L)		◐	45 m (assumes square source)
Source depth		○	Extends to water table (i.e., no attenuation in unsaturated zone)
Soil Characteristics			
Soil texture	○	○	Loam; defines soil characteristics/ parameters
Dry soil bulk density (ρ_b)	●	◐	1.5 kg/L
Soil porosity (n)	●	○	0.43
Vol. soil water content (θ_w)	●	◐	0.15 (INH); 0.30 (MTG)
Vol. soil air content (θ_a)	●	◐	0.28 (INH); 0.13 (MTG)
Soil organic carbon (f_{oc})	●	◐	0.006 (0.6%, INH); 0.002 (0.2 %, MTG)
Soil pH	○	○	6.8; used to determine pH-specific K_d (metals) and K_{oc} (ionizable organics)
Mode soil aggregate size	○		0.5 mm; used to derive $U_{t,7}$
Threshold windspeed @ 7 m ($U_{t,7}$)	●		11.32 m/s
Meteorological Data			
Mean annual windspeed (U_m)	●		4.69 m/s (Minneapolis, MN)
Air dispersion factor (Q/C)	●		90th percentile conterminous U.S.
Volatilization Q/C	●		68.81; Los Angeles, CA; 0.5-acre source
Fugitive particulate Q/C	●		90.80; Minneapolis, MN; 0.5-acre source
Hydrogeologic Characteristics			
Hydrogeologic setting		○	Generic (national); surficial aquifer
Dilution/attenuation factor (DAF)		◐	20

● Indicates input parameters directly used in SSL equations.
○ Indicates parameters/assumptions used to develop SSL input parameters.
INH = Inhalation pathway.
MTG = Migration to ground water pathway.

Analysis of Effects of Source Size on Generic SSLs

A large number of commenters on the December 1994 Soil Screening Guidance suggested that most contaminated soil sources were 0.5 acre or less. Before changing this default assumption from 30 acres to 0.5 acre, the Office of Emergency and Remedial Response (OERR) conducted an analysis of the effects of changing the area of a contaminated soil source on generic SSLs calculated for the inhalation and migration to ground water exposure pathways. This analysis includes:

- An analysis of the sensitivity of SSLs to a change in source area from 30 acres to 0.5 acre
- Mass-limit modeling results showing the depth of contamination for a 30-acre source that corresponds to a 0.5-acre SSL.

All equations, assumptions, and model input parameters used in this analysis are consistent with those described in Part 2 of this document unless otherwise indicated. Chemical properties used in the analysis are described in Part 5 of this document.

In summary, the results of this analysis indicate that:

- The SSLs are not particularly sensitive to varying the source area from 30 acres to 0.5 acre. This reduction in source area lowers SSLs for the inhalation pathway by about a factor of 2 and lowers SSLs for the migration to ground water pathway by a factor of 2.9 under typical hydrogeologic conditions.
- Half-acre SSLs calculated for 43 volatile and semivolatile contaminants using the infinite source models correspond to mass-limit SSLs for a 30-acre source uniformly contaminated to a depth of about 1 to 21 meters (depending on contaminant and pathway); the average depth is 8 meters for the inhalation pathway (21 contaminants) and 11 meters for the migration to ground water pathway (43 contaminants).

Sensitivity Analysis. For the inhalation pathway, source area affects the Q/C value (a measure of dispersion), which directly affects the final SSL and is not chemical-specific. Higher Q/C values result in higher SSLs. As shown in Table 3 (Section 2.4.3), the effect of area on the Q/C value is not sensitive to meteorological conditions, with the ratio of a 0.5-acre Q/C to a 30-acre Q/C ranging from 1.93 to 1.96 over the 29 conditions analyzed. Decreasing the source area from 30 acres to 0.5 acre will therefore increase inhalation SSLs by about a factor of 2.

For the migration to ground water pathway, source area affects the DAF, which also directly affects the final SSLs and is not chemical-specific. The sensitivity analysis for the dilution factor is more complicated than for Q/C because increasing source area (expressed as the length of source parallel to ground water flow) not only increases infiltration to the aquifer, which decreases the dilution factor, but also increases the mixing zone depth, which tends to increase the dilution factor. The first effect generally overrides the second (i.e., longer sources have lower dilution factors) except for very thick aquifers (see Section 2.5.7).

The sensitivity analysis described in Section 2.5.7 shows that the dilution model is most sensitive to the aquifer's Darcy velocity (i.e., hydraulic conductivity × hydraulic gradient). For a less conservative Darcy velocity (90th percentile), decreasing the source area from 30 acres to 0.5 acre increased the dilution factor by a factor of 3.1 (see Table 9, Section 2.5.7). For the conditions analyzed, decreasing the source area from 30 acres to 0.5 acre affected dilution factor from no increase to a factor of 4.3 increase. No increase in dilution factor for a 0.5-acre source was observed for the less conservative

(higher) aquifer thickness (46 m). In this case the decrease in mixing zone depth balances the decrease in infiltration rate for the smaller source.

Mass-Limit Analysis. The infinite source assumption is one of the more conservative assumptions inherent in the SSL models, especially for small sources. This assumption should provide adequate protection for sources with larger areas than those used to calculate SSLs. To test this hypothesis the SSL mass-limit models (Section 2.6) were used to calculate, for 43 volatile and semivolatile chemicals, the depth at which a mass-limit SSL for a 30-acre source is equal to a 0.5-acre infinite-source SSL.

The mass-limit models are simple mass-balance models that calculate SSLs based on the conservative assumption that the entire mass of contamination in a source either volatilizes (inhalation model) or leaches (migration to ground water model) over the exposure period of interest. These models were developed to correct the mass-balance violation in the infinite source models for highly volatile or soluble contaminants.

Table A-3 presents the results of this analysis. These results demonstrate that 0.5-acre infinite source SSLs are protective of uniformly contaminated 30-acre source areas of significant depth. For the 21 chemicals analyzed for the inhalation pathway, these source depths range up to 21 meters, with an average depth of 8 meters and a standard deviation of 5.7. For the migration to ground water pathway, source depths for 43 contaminants range to 21 meters, with an average of 11 meters and a standard deviation of 5.4.

References

U.S. EPA (Environmental Protection Agency). 1990. *Guidance on Remedial Actions for Superfund Sites with PCB Contamination*. Office of Solid Waste and Emergency Response, Washington, DC. NTIS PB91-921206CDH.

U.S. EPA (Environmental Protection Agency). 1994. *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*. Office of Solid Waste and Emergency Response, Washington, DC. Directive 9355.4-12.

Table A-3.Source Depth where 30-acre[a] Mass-Limit SSLs = 0.5-acre[b] Infinite-Source SSLs[c]

Chemical	Source depth (m)	
	Inhalation	Migration to ground water[c]
Acetone	NA	21
Benzene	8.1	12
Benzoic acid	NA	21
Bis(2-chloroethyl)ether	0.7	18
Bromodichloromethane	NA	13
Bromoform	0.9	11
Butanol	NA	20
Carbon disulfide	19	11
Carbon tetrachloride	11	6
Chlorobenzene	3.5	6
Chlorodibromomethane	NA	13
Chloroform	8.3	14
2-Chlorophenol	NA	4
1,2-Dichlorobenzene	NA	3
1,4-Dichlorobenzene	NA	3
1,1-Dichloroethane	9.1	15
1,2-Dichloroethane	5.6	18
1,1-Dichloroethylene	15	10
cis-1,2-Dichloroethylene	NA	15
trans-1,2-Dichloroethylene	NA	12
2,4-Dichlorophenol	NA	8
1,2-Dichloropropane	6.2	14
1,3-Dichloropropene	12	12
2,4-Dimethylphenol	NA	7
2,4-Dinitrophenol	NA	21
2,4-Dinitrotoluene	NA	11
2,6-Dinitrotoluene	NA	12
Ethylbenzene	NA	4
Methyl bromide	12	17
Methylene chloride	8.9	18
2-Methylphenol	NA	11
Nitrobenzene	0.5	13
1,1,2,2-Tetrachloroethane	1.6	11
Tetrachloroethylene	8.7	7
Toluene	NA	7
1,1,1-Trichloroethane	NA	9
1,1,2-Trichloroethane	3.4	14
Trichloroethylene	6.8	7
Vinyl acetate	4.6	20

Table A-3. (continued)

Chemical	Source depth (m)	
	Inhalation	Migration to ground water[c]
Vinyl chloride	21	13
m-Xylene	NA	4
o-Xylene	NA	4
p-Xylene	NA	4

NA = Risk-based SSL not available.

[a] Q/C = 35.15; DAF = 10.

[b] Q/C = 68.81; DAF = 20.

[c] Migration to ground water mass-limit analysis based on 70-yr exposure duration and 0.18 m/yr infiltration rate.

NEW MEXICO ENERGY, MINERALS and
NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Carol Leach
Acting Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

January 31, 2002

CERTIFIED MAIL
RETURN RECEIPT NO. 7001-1940-0004-3929-7082

Mr. R.W. Massey
Chevron USA Production Company
P.O. Box 1949
Eunice, New Mexico 88231

RE: CASE # 1R-0344
EAST GRIMES BATTERY #2
HOBBS, NEW MEXICO

Dear Mr. Massey:

The New Mexico Oil Conservation Division (OCD) has reviewed Chevron USA Production Company's (Chevron) September 14, 2001 "CHEVRON USA, COLEMAN STREET REMEDIATION/CLEANUP WORK PLAN, LEA COUNTY, NEW MEXICO" and August 27, 2001 "CHEVRON USA, COLEMAN/GRIMES SITE INVESTIGATION, LEA COUNTY, NEW MEXICO" which were submitted on behalf of Chevron by their consultant Safety & Environmental Solutions, Inc. These documents present the results of Chevron's investigation of the extent and magnitude of soil contamination at the former East Grimes Battery #2 located in the NE/4 of Section 33, Township 18 South, Range 38 East, Hobbs, New Mexico. The documents also contain a work plan for remediation of contaminated soils at the site.

The investigation work conducted to date is satisfactory. However, the OCD has the following comments and requests for information regarding the above referenced documents:

1. The discussion of the soil sampling results on Page 2 of the August 27, 2001 document states that "Minor traces of metals were detected in the surface samples; however, no levels that would be harmful to the public were detected". Please provide the OCD with the technical basis and health-based criteria for this conclusion.

2. The "Site Plan Borehole Location", Figure 6, page 12, does not contain borehole identification numbers which correspond to the borehole numbers listed in Table #3 on page 5. Please provide a revised figure which includes this information.

Please submit the above information to the OCD Santa Fe Office by February 28, 2002 with a copy provided to the OCD Hobbs District Office. Submission of this information will allow the OCD to complete a review of Chevron's work plan

If you have any questions, please contact me at (505) 476-3491.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor
Glen Houston, G. Houston Associates
Bob Allen, Safety & Environmental Solutions, Inc.

NEW MEXICO ENERGY, MINERALS and
NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

July 26, 2001

CERTIFIED MAIL
RETURN RECEIPT NO. 3771-7484

Mr. R.W. Massey
Chevron USA Production Company
P.O. Box 1949
Eunice, New Mexico 88231

RE: ABATEMENT PLAN (AP-28)
EAST GRIMES BATTERY #2
HOBBS, NEW MEXICO

Dear Mr. Massey:

The New Mexico Oil Conservation Division (OCD) has reviewed Chevron USA Production Company's (Chevron) June 28, 2001 "ABATEMENT PLAN (AP-28) EAST GRIMES BATTERY #2, HOBBS, NEW MEXICO". This document requests that the abatement plan for the Chevron's former East Grimes Battery #2 located in the NE/4 of Section 33, Township 18 South, Range 38 East, Hobbs, New Mexico be rescinded at this time due to the lack of any known impacts on ground water or public health from the former tank battery. Alternately, Chevron has submitted a proposed work plan for investigation of the extent and magnitude of contamination at the site.

Chevron's request to rescind abatement plan AP-28 is approved. Please be aware that OCD will re-instate the abatement plan for the site if the site investigations show that ground water has been impacted or if the site poses a threat to public health.

The above-referenced investigation work plan is approved with the following conditions:

1. OCD inspections of the site have shown that surface contamination exists in a number of areas of this city block some of which are outside the area of the proposed soil borings. In order to determine potential surface threats to public health, the OCD requires that Chevron grid the block into quarters and obtain 2 surface soil samples from each grid. One sample shall be obtained from the center of each grid and one sample shall be obtained from the most visually stained area of each grid. The soil sample from each point shall be a composite of soils from the 0-6 inch depth interval and shall be analyzed for concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX); total petroleum hydrocarbons (TPH); and metals.

2. Soil samples from each soil boring shall be obtained on 5 foot intervals and analyzed for BTEX, TPH and chlorides.

3. All samples shall be obtained and analyzed using EPA approved methods and quality assurance/quality control procedures.

4. All borings shall be plugged with a cement grout containing 3-5% bentonite.

5. The report on the investigations shall be submitted to the OCD Santa Fe Office by September 26, 2001 with a copy provided to the OCD Hobbs District Office. The report shall contain:

   a. A description of the investigation activities which occurred including the history of the site and waste disposal practices as well as descriptions of the nature and volume of all spills and any other relevant information.

   b. A geologic/lithologic log for each soil boring including visual observations of contamination and field soil organic vapor measurements.

   c. A site map showing the location of the former tanks, pipelines, spills, waste disposal areas, soil sample locations, borehole locations and any other pertinent site features.

   d. Historical aerial photographs of the site.

   e. Summary tables of all sampling results and copies of all recent laboratory analytical data sheets and associated QA/QC data.

Please be advised that OCD approval does not relieve Chevron of responsibility if the investigations fail to adequately determine the extent of contamination related to Chevron's activities. In addition, OCD approval does not relieve Chevron of responsibility for compliance with any other federal, state or local laws and regulations. If you have any questions, please contact Bill Olson at (505) 476-3491.

Sincerely,

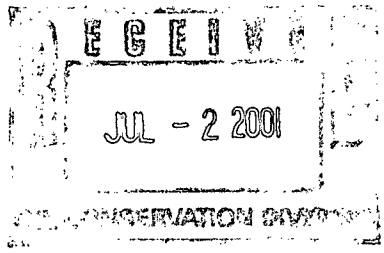
for Roger C. Anderson
Environmental Bureau Chief

xc: Chris Williams, OCD Hobbs District Supervisor
Glen Houston, G. Houston Associates

Chevron

Chevron

June 28, 2001



Mr. Roger C. Anderson
Environmental Bureau Chief
NMOCD
1220 South Saint Francis Drive
P.O. Box 6429
Santa Fe, NM 87505-5472

Attn: Bill Olsen

RE: ABATEMENT PLAN (AP-28)
EAST GRIMES BATTERY #2
HOBBS, NEW MEXICO

Mr. Anderson:

In response to your letter dated May 11, 2001 concerning the aforementioned site, Chevron removed the baseball backstops from the property on May 18th, 2001 by permission of the current surface owner, Texland Petroleum – Hobbs, L.L.C.

However, it is Chevron's position that while there is limited surface oil field waste at the site, they pose no immediate threat to public health. The OCD was notified in the fall of 1971 when this battery site was closed. The asphaltines at the surface provide an effective barrier to any potential contaminants below. Depth to groundwater is estimated to be approximately 57 feet in this immediate area and it has not been demonstrated that this site has impacted it.

Therefore, Chevron respectfully submits that this site should be handled under a remediation plan rather than an abatement plan. Chevron proposes that, with your approval, we be allowed to delineate the site of the old battery by drilling five to seven boreholes to determine the vertical and horizontal extent of contamination. The boreholes will be drilled using a 7" hollow-stem auger with samples taken at intervals to be determined by field samples. Each borehole will be drilled to a depth where the contamination level by TPH analysis is equal to or less than 100 ppm. Please see the complete investigation plan as provided by Safety and Environmental Solutions as an attachment to this letter. After the delineation of the site is complete, Chevron will provide the NMOCD with a complete report of findings as well as an appropriate work plan detailing any work to be performed at the subject site. Once a work plan is approved by NMOCD and before any work begins, Chevron will notify all residents/property owners immediately adjacent to the worksite. If you have any questions about our proposal please contact me at (505) 394-1237.

Thank you,

Richard W. Massey
Field Compliance Specialist

cc: Chris Williams, OCD Hobbs District Supervisor
Texland Petroleum – Hobbs, L.L.C.

Site Investigation Plan
Coleman Street Site

Section 33 Township 18 S Range 38 E
Lea County, New Mexico

June 28, 2001

Prepared for:

Chevron USA
P.O. Box 1949
Eunice, New Mexico 88231

Safety & Environmental Solutions, Inc.
703 E. Clinton Suite 103
Hobbs, New Mexico 88240
(505) 397-0510

TABLE OF CONTENTS

I. Background

Safety & Environmental Solutions, Inc. (SESI) was engaged to perform a site assessment of the Coleman Street Site of an abandoned tank battery located in Section 33 Township 18S, Range 38E, Lea County, New Mexico (Figure 1). The site is situated inside the city limits of Hobbs, New Mexico and is bounded by Alston Street to the north, Burk Street to the east, Cain Street to the south, and Coleman Street to the west. The site consists of an approximately 20,000 square foot area as determined from historical aerial photographs. This area was used as a site for the storage of fluids produced by wells. (Figure 2).

II. Work To Be Performed

SESI will perform the drilling and sampling services for this project. Cardinal Laboratories of Hobbs, New Mexico was contracted to perform the laboratory analytical testing required for this project. SESI will use a hollow stem auger rig for the drilling and a thin wall sampling tube for the extraction of the samples. Five to seven test borings will be drilled throughout the subject site to depths that represent the vertical extent of contamination. The vertical extent of the contamination was considered to be 100 ppm TPH. The regulatory limits found in **"Unlined Surface Impoundment Closure Guidelines"** *New Mexico Oil Conservation Division* - February 1993 address Total Petroleum Hydrocarbons (TPH), Benzene, Ethyl Benzene, Toluene and Total Xylenes (BTEX).

SESI will sample the test borings at a depth of five (5) feet and perform field analytical tests to determine the extent of contamination of each sample. The field analytical tests performed will be Total Petroleum Hydrocarbons (TPH) (EPA Method 418.1) using a General Analysis Corp. Mega TPH, Total Petroleum Hydrocarbon Analyzer Serial # 01196. Soil sampling was performed on soils from each test boring using SOPs found in **Environmental Protection Agency, 1984, Characterization of Hazardous Waste Site - A Methods Manual: Vol II.** The samples extracted from the bottom of each test boring will be preserved on ice and delivered along with Chain of Custody to Cardinal Laboratories for testing. The samples will be analyzed for Total Petroleum Hydrocarbons (EPA TRPHC SW-846 8015M) and BTEX (EPA Method SW-846-8260) and Chlorides (EPA Method 600/4-79-020 325.3). (Appendix A)

The test borings will plugged with cuttings.

III. Reporting

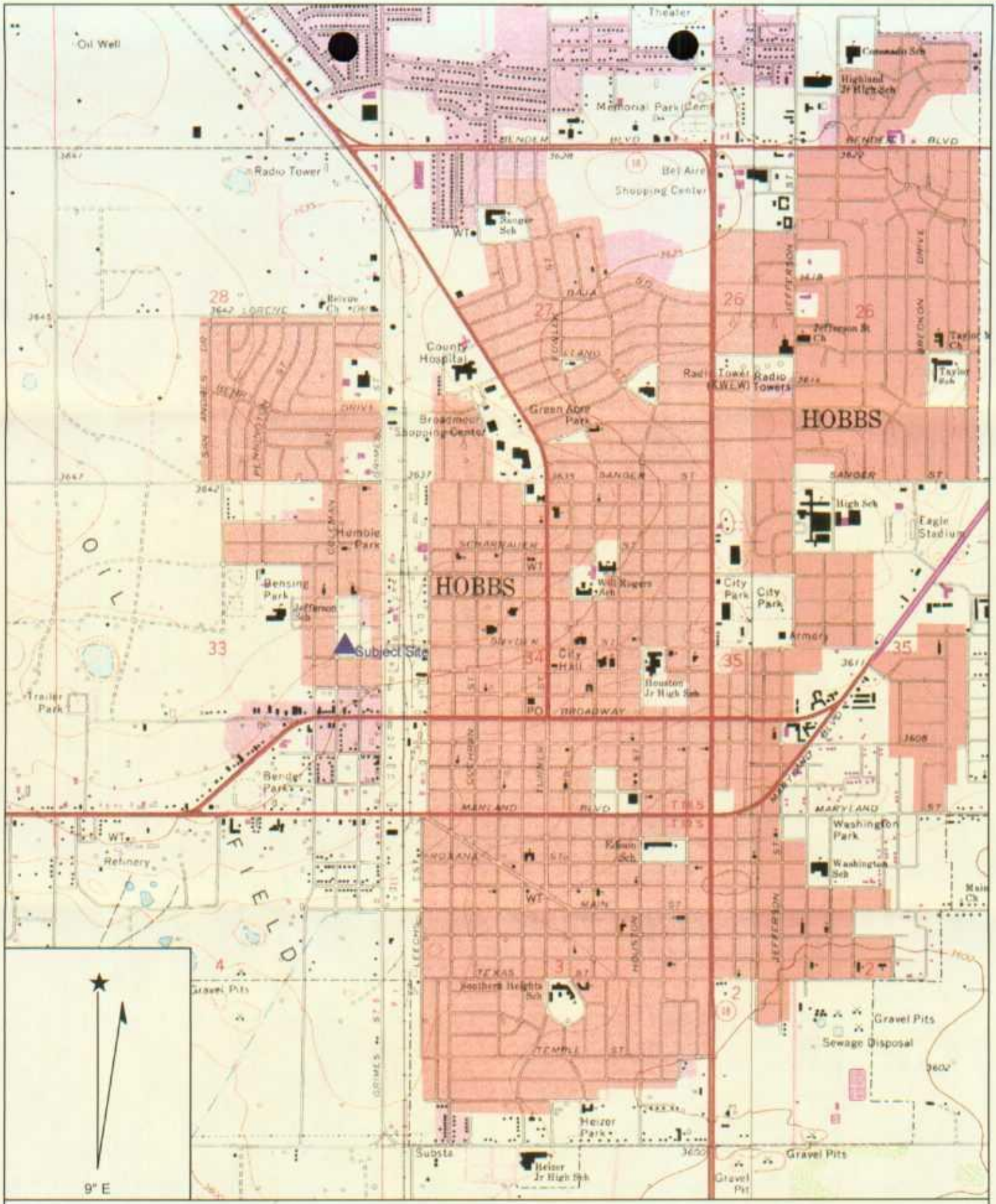
SESI will communicate the findings and conclusions of this investigation to Chevron USA in a detailed report at the conclusion of the investigation. The report will include the results of the sample analysis, proximity to groundwater and all other relevant

information pertaining to this investigation.

IV. Figures

Figure 1 - Vicinity Map
Figure 2 - Site Plan

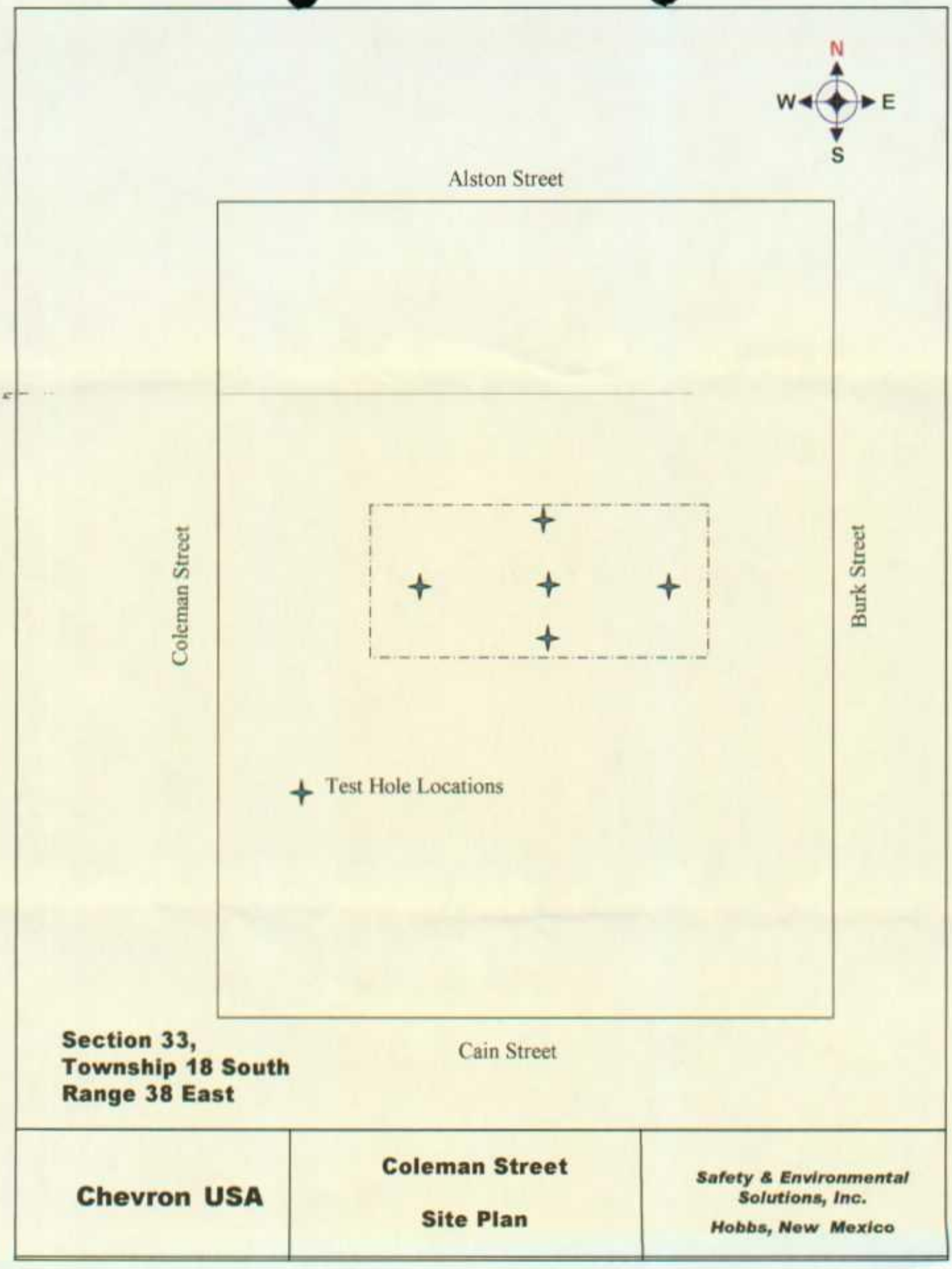
Figure 1
Vicinity Map



Name: HOBBS WEST
Date: 6/28/2001
Scale: 1 inch equals 2000 feet

Location: 032° 42' 20.6" N 103° 08' 18.2" W
Caption: Chevron USA
Coleman Street Site
Section 33, T 18S, R 38E

Figure 2
Site Plan



Section 33,
Township 18 South
Range 38 East

Chevron USA	**Coleman Street** **Site Plan**	***Safety & Environmental Solutions, Inc.*** ***Hobbs, New Mexico***

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

May 11, 2001

CERTIFIED MAIL
RETURN RECEIPT NO. 5051-4379

Mr. R.W. Massey
Chevron USA Production Company
P.O. Box 1949
Eunice, New Mexico 88231

RE: ABATEMENT PLAN (AP-28)
EAST GRIMES BATTERY #2
HOBBS, NEW MEXICO

Dear Mr. Massey:

New Mexico Oil Conservation Division (OCD) inspections of Chevron USA Production Company's (Chevron) former East Grimes Battery #2 located in the NE/4 of Section 33, Township 18 South, Range 38 East, Hobbs, New Mexico have shown that the surface of the site is contaminated with oil field wastes. This site is currently a vacant lot within the City of Hobbs which has fenced backstops for use as baseball fields. The site is across the street from the residence of Mr. and Mrs. Aldaz at 309 North Coleman where the OCD has required Shell to investigate oilfield contamination from a crude oil pump station related to the East Grimes Battery #2.

Due to the potential for impacts on public health and the potential that the site has impacted ground waters, the OCD requires that Chevron submit an abatement plan for the former East Grimes Battery #2 Site in accordance with OCD Rule 19 (19 NMAC 15.A.19). To initiate the abatement plan process, the OCD requires that Chevron submit a Stage 1 investigation proposal to the OCD pursuant to Rule 19.E.1. and 3. The Stage 1 investigation plan shall be submitted to the OCD Santa Fe Office by July 11, 2001 with a copy provided to the OCD Hobbs District Office. If you have any questions, please contact Bill Olson at (505) 476-3491.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

xc: Chris Williams, OCD Hobbs District Supervisor
Glen Houston, G. Houston Associates