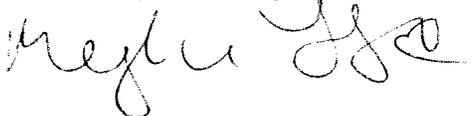


**HEALTH AND SAFETY PLAN
FOR THE REVISED FEASIBILITY STUDY
OKLAHOMA REFINING COMPANY SITE
CADDO COUNTY, OKLAHOMA**

February 15, 2008

Prepared by:

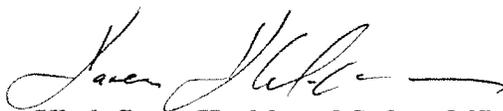
Meghan Lloyd – Site Project Manager, Site Health and Safety Officer



Approved by:



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Karen Khalafian – Health and Safety Officer

**State of Oklahoma
Department of Environmental Quality
Land Protection Division
Site Remediation Section**

November 2007

Health and Safety Plan

A. General Information

Site Name: Oklahoma Refining Company (ORC)

Location: ORC – South Basket Street
Cyril, Oklahoma; Caddo County
NE1/4 Section 19 T5N R9W
S1/2 SE1/4 Section 18 T5N R9W

Objective: The Health and Safety Plan (HASP) is intended to establish requirements and procedures to be followed during the Revised Feasibility Study to protect the health and safety of Department of Environmental Quality (DEQ) investigative personnel.

Frequency of Sampling: Ground water, surface water, sediment, and soil sampling over a period of two years.

Background Review: Complete: Preliminary:

Overall Hazard: Serious: Moderate:
Low: Unknown:

B. Waste Characteristics.

Waste Type(s): Liquid Solid Sludge Gas

Characteristic(s): Corrosive Ignitable Radioactive
Volatile Toxic Reactive
Unknown

Site Descriptions: The site covers approximately 220 acres and is located in a suburban area. The wastes assumed to be associated with this type of facility include crude oil, tank residues, brine,

acid and caustic sludges, heavy metals, petroleum products, coke, sulphur compounds, and solvents.

Principal Disposal

Method:

Presumably, onsite surface disposal and the possibility of buried waste onsite.

C. Hazard Evaluation

Heat and cold stress:

Depending on the time of year in which the sampling event occurs, heat and cold stresses can be a major concern. All field members will be periodically questioned and monitored by the Site Project Manager for heat and cold stresses and fatigue. Work periods will be timed, and breaks will focus on fluid replenishment and removal from direct sun exposure if deemed necessary for heat stress. When temperatures fall below 32°F, work will be curtailed as needed. Heat and cold stress symptoms, preventive measures, and medical treatment procedures will be reviewed prior to field entry.

Physical and mechanical hazards:

Possible physical and mechanical hazards include fallen power lines, buried service lines, steep gradients, trenches, holes, ditches, slippery surfaces, and sharp objects (nails, metal shards, broken glass, abandoned equipment, etc.). All personnel will be cautioned about these potential hazards prior to field entry. All necessary precautions will take place to identify the existence of petroleum or natural gas pipeline system during the site reconnaissance stage of the sampling event.

Biological hazards:

Snakes, insects, rodents, garbage, refuse, and poisonous plants are of concern while at these sites. All personnel will be cautioned about potential biological hazards.

Chemical hazards:

Chemically impacted soils have been removed from the former refinery on the south side of the site; impacted soils still exist on the north side of the site. Also, contaminated ground water is present across the site. Gladys Creek has several seep areas where contaminated ground water is

entering the creek bed. Personnel will be instructed to avoid physical contact with contaminated soil, surface water, creek sediment, ground water, and purge water during sampling events.

Severe weather:

Severe thunderstorms and tornadoes can occur at any time of the year. Weather forecasts will be monitored by the Site Project Manager four days prior to planned field activities. Weather conditions will also be monitored continuously during the sampling event by the Site Project Manager.

D. Site Safety Work Plan

General Information:

The following are not allowed within the site boundaries: smoking, eating, drinking, chewing of gum or tobacco, applying of lip balm or cosmetics, or horseplay. Fluid replenishment will only be allowed inside the onsite vehicle. All personnel participating in the sampling event are required to have the OSHA 40-Hour Hazardous Waste Operations (HAZWOPER) training and Baseline Medical Monitoring. All health and safety activities will fall under the jurisdiction of the DEQ site manager during the ongoing monitoring of the ORC site.

Personal Protection:

Level of Protection: A ___ B ___ C ___ D X ___

Level D equipment that will be required for this project include steel-toed boots and disposal nitrile gloves. However, DEQ personnel will not be prohibited from using additional protective equipment if desired. Hats, jackets, scarves, and gloves may be appropriate depending on the time of year.

Modified Level C equipment that will be required include full-face, air-purifying devices with the combination cartridges which provide respiratory protection against most vapors at concentrations until 5 ppm, inner and outer chemical resistant gloves, steel-toed boots, and chemical resistant clothing.

Decontamination: While onsite, disposable personal protective equipment (PPE) and disposable sampling tools will be collected, double-bagged, and stored for final disposal at DEQ headquarters. If immediate medical treatment is required to save a life or limb, decontamination will be delayed.

Site control: Access to the site is partially restricted by fences. DEQ field team members will continually monitor for unauthorized persons entering the site during sampling activities. Trespassers will be asked to leave the site. Local police will be notified if the unauthorized persons are uncooperative. If more than one team is conducting sampling at the site, cell phones will be employed.

Work limitations: Sampling is permitted during daylight hours only; samples will not be collected if adverse weather conditions exist; samples will not be collected if sample integrity is questioned (precipitation during sampling event). Sampling events will be conducted in teams--a minimum of two people ("buddy system"). All personnel must maintain visual or vocal communication at all times with their "buddy". Emergency hand signals will be used if necessary.

E. Emergency Information

Cyril Police Dept. & Ambulance	580-464-2216
Fire Department	580-464-2255
Physicians Hospital-Anadarko	405-247-2551
1002 Central Boulevard East Anadarko, Ok 73005-4496	
Oklahoma Poison Control	1-800-522-4611
Caddo County Sheriff	405-247-6666
DEQ Land Protection Division	405-702-5100

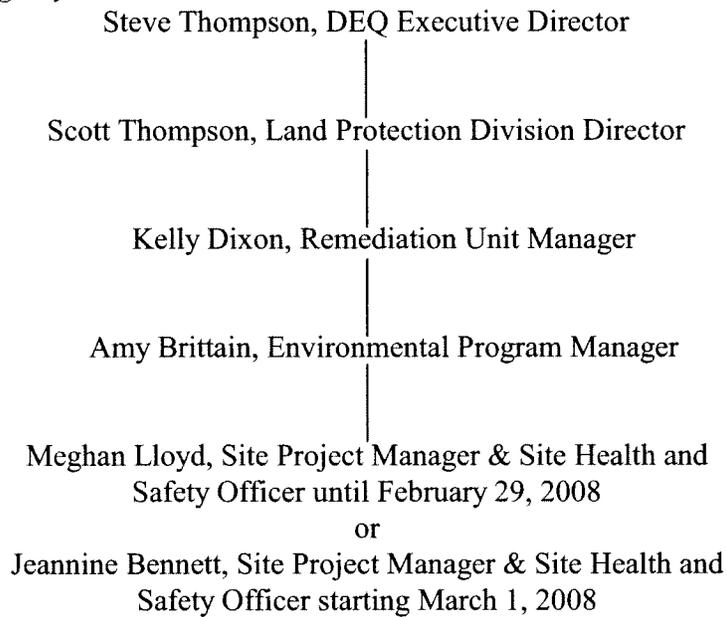
Directions to hospital: The attached map should be kept onsite on the dash of the sampling vehicle for quick reference. Directions to the hospital are as follows:

- 1) Proceed west on Wendell Ave to HW 277 (approximately 2 blocks);
- 2) Turn right (north) on HW 277 (road turns into HW 8);
- 3) Follow HW 8 approximately 14 miles into Anadarko;

- 4) Turn right (east) onto HW 62/E. Central Ave;
- 5) Turn right into Physician Hospital at 1002 E. Central Ave.

<i>Emergency hand signals:</i>	Hand gripping throat:	Out of air; can't breathe!
	Grip partner's wrist or place hands around waist:	Leave area immediately!
	Hands on top of head:	Need assistance.
	Thumbs up:	OK; I'm all right; I understand.
	Thumbs down:	No; negative.

*Chain-of-command
in case of emergency:*



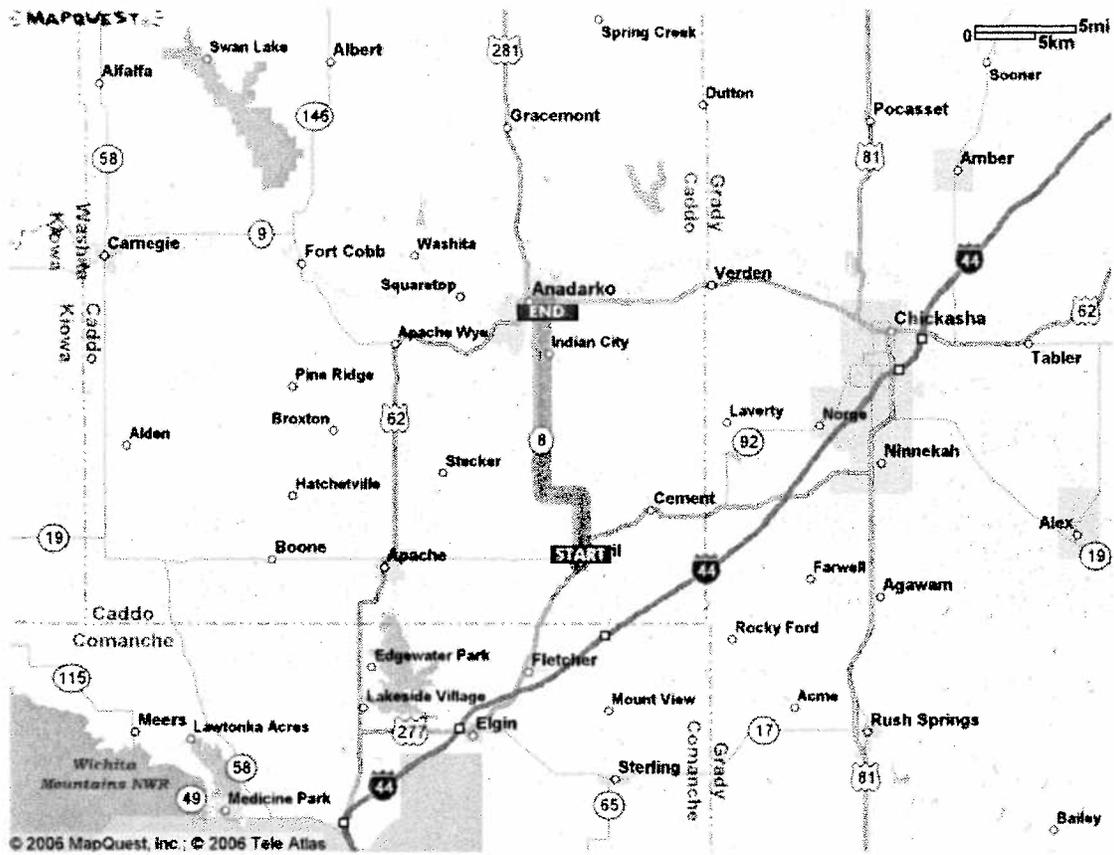


Figure 1: Directions from ORC to Hospital in Anadarko

Table 1
Chemical Hazard Summary

Chemical	Exposure Limits in Air	Route of Entry	Health Effects	PPE	Properties
Arsenic, Inorganic Synonym: Varies with cpd. CAS#: 7440-38-2, UN 155	PEL 0.01 mg/m3 TLV 0.01 mg/m3 REL C 0.02 mg/m3 IDLH 5 mg/m3	Inh, Ing, Con, Abs	Ulc. Nasal septum, hyperpig. skin, derm., GI disturb., resp. irr.	gloves, respirator	LEL: NA IP: NA Water: Solid DOT: Toxic
Barium Compounds, Insol Synonym: Barium Sulfate CAS# UN 1400	PEL 0.5 mg/m3 TLV 0.5 mg/m3 REL 0.5 mg/m3 IDLH NA	Inh, Ing	None specific listed	gloves, respirator	LEL: NA IP: NA Water: Solid DOT: Dangerous when wet
Benzene Synonym: Benzol CAS#: 71-43-2, UN 1114	PEL 1 ppm TLV 0.5 ppm REL 0.1 ppm ca IDLH 500 ppm	Con, Ing, Inh	Irrit eyes, nose, resp sys; giddy, headache, nausea, stagger, anorexia, fatigue; bone marrow (leukemia)	gloves, respirator	LEL: 1.20% IP: 9.24 eV Water: Heavier DOT: Flam. Liquid Floats
Cadmium Synonym: Cadmium metal CAS#: 7440-43-9, UN 2570	PEL 0.005 ug/m TLV 0.01 mg/m3 REL NA IDLH 9 mg/m3, al	Inh, Ing	Pulm dema, dysp, cough, chest tight, muscle aches, nau, kidney, metal fume fever	gloves, respirator	LEL: NA IP: NA Water: Solid DOT: Toxic
Chromium Salts, Trivalent Synonym: Varies with cpd. CAS#: Varies with cmpd.	PEL 0.5 TLV 0.5 mg/m3 REL 0.5 IDLH 250 mg/m3	Inh (dust), Con, Ing	Varies by exposure route; irritates senses and skin	gloves, respirator	LEL: NA IP: NA Water: Solid DOT: Toxic
Copper Synonym: None CAS#: 7440-50-8, UN NA	PEL 1 mg/m3 TLV 1 mg/m3 REL 1 mg/m3 IDLH 100 mg/m3	Inh, Ing, Con	Irrit nasal mucus membranes, pharynx, nose perforation; eye irrit; metallic taste; derm	gloves, respirator	LEL: NA IP: NA Water: Solid DOT: NA
Ethyl Benzene Synonym: Ethyl Benzol CAS#: 100-41-4, UN 1175	PEL 100 ppm TLV 100 ppm REL 100 ppm IDLH 800 ppm	Abs, Ing, Inh	Irrit eyes, mucus membranes; headache; dermatitis; narcosis, coma	gloves, respirator	LEL: 0.80% IP: 8.76 eV Water: Heavier DOT: Flam. Liquid Floats
Lead and Compounds Synonym: Lead CAS#: 7439-92-1, UN NA	PEL 0.05 mg/m3 TLV 0.05 mg/m3 REL 0.1 mg/m3 IDLH 100 mg/m3	Inh, Ing, Con	Lassitude, insomnia, palor, anorexia, colic kidney disease	gloves, respirator	LEL: NA IP: NA Water: Solid DOT: NA
Nickel Metal and Other Compounds	PEL 1 mg/m3	Inh, Ing, Con	Sens derm, allergic asthma,	gloves,	LEL: NA Relative Density:

Table 1
Chemical Hazard Summary

Chemical	Exposure Limits in Air	Route of Entry	Health Effects	PPE	Properties
Synonym: elemental nickel CAS#: 7440-02-0 Metal	TLV 1.5 mg/m ³ REL 0.015 mg/m ³ IDLH 10 mg/m ³		pneumitic.	respirator	IP: NA DOT: NA Air: Solid Water: Solid
PAHs Synonym: Polynuclear Aromatic Hydrocarbons; as Benzo(a)pyrene, Fluoranthene, etc CAS#: NA	REL IDLH 80 mg/m ³	Inh (dust), Abs	Photosensitive; skin cancer, long term; inh-possible lung cancer.	gloves, respirator	LEL: NA IP: NA DOT: Relative Density: Air: Water:
Toluene Synonym: Toluol, Methylbenzene CAS#: 108-88-3, UN 1294	REL 200 mg/m ³ TLV 50 mg/m ³ REL 100 mg/m ³ IDLH 500 mg/m ³	Abs, Con, Ing, Inh	Fainting, weakness, confusion, euphoria, dizziness, watery eyes, liver and kidney damage	gloves, respirator	LEL: 1.10% IP: 8.82 eV DOT: Flam. Liquid Relative Density: Air: Heavier Water: Floats
Xylenes - (ortho) Synonym: Dimethyl Benzene CAS#: 1330-20-7, UN 1307	REL 100 ppm TLV 100 ppm REL 100 ppm IDLH 900 ppm	Abs, Ing, Inh	Irritation eyes, nose, throat, dizziness, excit, drowsiness, staggering	gloves, respirator	LEL: 0.90% IP: 8.56 eV DOT: Flam. Liquid Relative Density: Air: Heavier Water: Floats
Zinc Compounds Synonym: Varies with cpd. CAS#: Varies with cpd	REL 500 mg/m ³	Inh	Sweet metallic taste, dry throat, cough, chills	gloves, respirator	LEL: NA IP: NA DOT: NA Relative Density: Air: Solid Water:

Key:

- Abs - Skin Absorption
- Con - Skin and/or eye contact
- DOT - Department of Transportation
- IDLH - Immediately dangerous to life and health
- Ing - Ingestion
- Inh - Inhalation
- IP - Ionization potential (by UV lamp)
- LEL - Lower exposure limit
- NA - Not applicable
- REL - Permissible exposure limit
- REL - Recommended exposure limit
- TLV - Threshold limit value