UNITED HYDRAULICS

(Hampton, Iowa)

GENERAL DESCRIPTION

The 22.4-acre site is located in the southeast corner of Section 33, T92N, R20W, on the south side of the city of Hampton, Iowa in Franklin County. The United Hydraulics Corporation manufactured hydraulic cylinders at the site from 1971 until early 1987. Activities at the facility included the machining of metal stock, chromium electroplating, and painting. The site is currently owned by Tower, LLC and is used for general warehousing and office space. Requests to divide and sell two parcels in the southwest corner of the property were approved by the Department in 2004 and 2010. The site was entered on the Registry in September 1989.

SITE CLASSIFICATION

In 2007 this site was re-classified "d" in accordance with 455B.427.3. The site is properly closed but requires continued management.

TYPE AND QUANTITY OF HAZARDOUS WASTE

- **The types of hazardous waste were identified as Metals and VOCs**

TABLE 1
Groundwater Contamination

Compound	**Highest Value** (ug/L)	**Compound**	**Highest Value** (ug/L)
Chromium	**390,000**	Ethylbenzene	**930**
1,1-Dichloroethane	**81**	1,2-Dichloroethylene (Cis-)	**300**
1,1-Dichloroethylene	**25**	1,2-Dichloroethylene (Trans-)	**1,700**
1,1,1-Trichloroethane	**280**	Tetrachloroethylene (PCE)	**32**
1,2-Dichlorobenzene	170	Trichloroethylene (TCE)	**29**
1,2-Dichloroethane	**700**	Toluene	140
1,4-Dichlorobenzene	**140**	Xylenes	1,900
1,2-Dichloropropane	**20**	Naphthalene	**10,000**
Benzene	**95**	Cyanide	7

* Data in shaded /**Bold** exceed statewide standards for protected ground water

SUMMARY OF PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS

- **The primary public health concern is for exposure to contaminated drinking water**

The site is located on the south side of Hampton, Iowa. Four residences located near the site had water supply wells in a shallow aquifer. Because these wells were threatened with contamination by chromium in the shallow groundwater they have been connected to the Hampton municipal water system. The city of Hampton has four water supply wells. Three of the wells are 55 feet deep or less and draw water from the same aquifer. They are located from 1.6 to 2.1 miles southwest of the site. The fourth well is 1,763 feet deep and draws water from the Jordan aquifer. The deep well is located 0.6 miles from of the site. None of the Municipal wells appear to be threatened by the contamination from the site.

STATUS OF ASSESSMENT, MONITORING OR REMEDIAL ACTIONS

The state is the lead agency at the site.

The quantity of hazardous waste released from this site is undetermined. The site's owner began conducting investigations of potential soil and groundwater contamination in 1987. A combination of monitoring wells and soil borings revealed an area of chromium contamination in the groundwater at the southeast corner of the facility and an area of hydrocarbon contamination at other locations near the main building.

Further investigations in 1988 and 1989 found the chromium contamination in the shallow groundwater extends at least 1300 feet east-southeast of the site. Another investigation was conducted in 1991 in conjunction with the development of a remedial action plan. A total of 34 monitoring wells have been installed and sampled during these investigations. The maximum groundwater contamination levels for chromium and volatile organic compounds (VOCs) appear in Table 1.

1992 Remedial Actions

Numerous permanent and temporary wells or borings were used to continue the investigation of the nature and extent of chromium and VOC contamination. This activity includes attempting to identify the means of horizontal dispersion, specifically the role of sand layers or lenses in contaminant transport. This activity was also focused on attempting to identify the vertical extent of contamination. In addition, work was begun on the initial phases of the groundwater extraction system to remove chromium contaminated groundwater southeast of the plant. Test trenches are being installed to determine hydrologic properties that in turn will be used to design and install the full-scale interception (extraction) system.

1993 Remedial Actions

Investigation phases related to defining the extent of contamination are essentially complete and a long-term monitoring plan is in place. Further evaluation of the existing test trenches, coupled with additional monitoring results, have resulted in proposed alterations to the trench recovery system for the chrome plume. The implementation of the system has been delayed by the extremely wet conditions prevalent in 1993.

1994 & 1995 Remedial Actions

Monitoring of existing wells continued as per agreement. The department approved a pilot study to evaluate the possibility of using in situ biological treatment to reduce chromium in the groundwater from the hexavalent to the trivalent state. The pilot study is underway.

1996 Remedial Actions

The evaluation of the pilot biological treatment for the reduction of chrome VI to chrome III was completed and determined to be ineffective. The operation of the interception system for the chromium plume continues. A sump was installed on the west end of the building for the removal of floating hydrocarbon product on the water table.

1998/1999 Remedial Actions

Efforts were undertaken to clarify the activities required at the site, in order to ease the transfer of ownership of the site. Monitoring will continue per earlier agreements and no change is proposed for recovering the limited amount of floating organic contamination west of the plant. The interceptor trench was "closed down" in 1999, as it seems to have little impact on constituent migration.

Through 1998, remedial actions were aimed at interception of chromium contaminated groundwater, and the removal of free product organic contaminants. An environmental easement was placed on the plant property and the area of chromium contamination to the southeast, which will prevent well installations in both areas and control some activity / uses in the immediate vicinity of the plant. The purpose of the easements is to prevent exposure of persons to levels of contamination deemed unsafe.

2006 to 2013 Groundwater Monitoring

Annual ground water monitoring through June 2006 for total volatile organic compounds (TVOC) and chromium indicated generally declining concentration trends; however, chromium concentrations in MW-7A started to increase in the 2007 sampling event. In 2008, the groundwater monitoring program was reduced by limiting the groundwater analysis to chromium and collecting samples from 13 monitoring wells and two private wells. In 2012, the Hemmen well was dropped from the sampling protocol as the well pump becoming nonoperational and Mr. Hemmen has no plans on replacing the pump. Chromium concentrations in MW-7A continued to increase to the all time high in June of 2013.

2013: Golden Triangle sold the site to Tower, LLC in November 2013. Tower, LLC will continue to use the property for storage and office rental. The sale was approved by the DNR on November 26, 2013.

2014: Chromium contamination in groundwater decreased in the 2014 sampling, reversing a trend for the past several years. 2015 sampling continued the decreasing trend however chromium concentrations increased. Because of the chromium increase in 14A, monitoring wells MW-20A and MW-22A, downgradient from MW-14A, are to be included for the 2016 sampling event.

2015: The Annual Monitoring report was received and approved by DNR.

2016: The Annual Groundwater Monitoring Report was received September 30 and is under review.

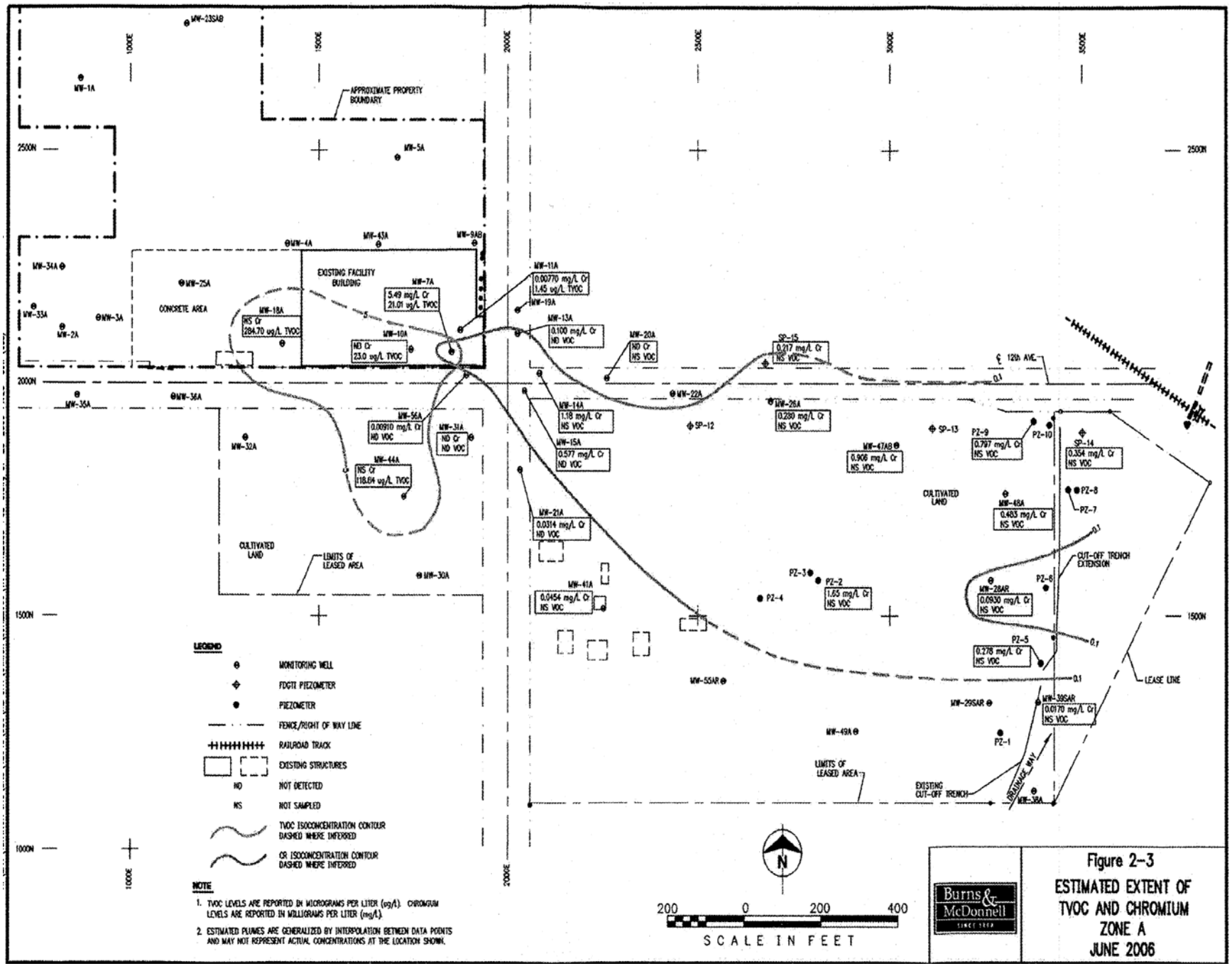
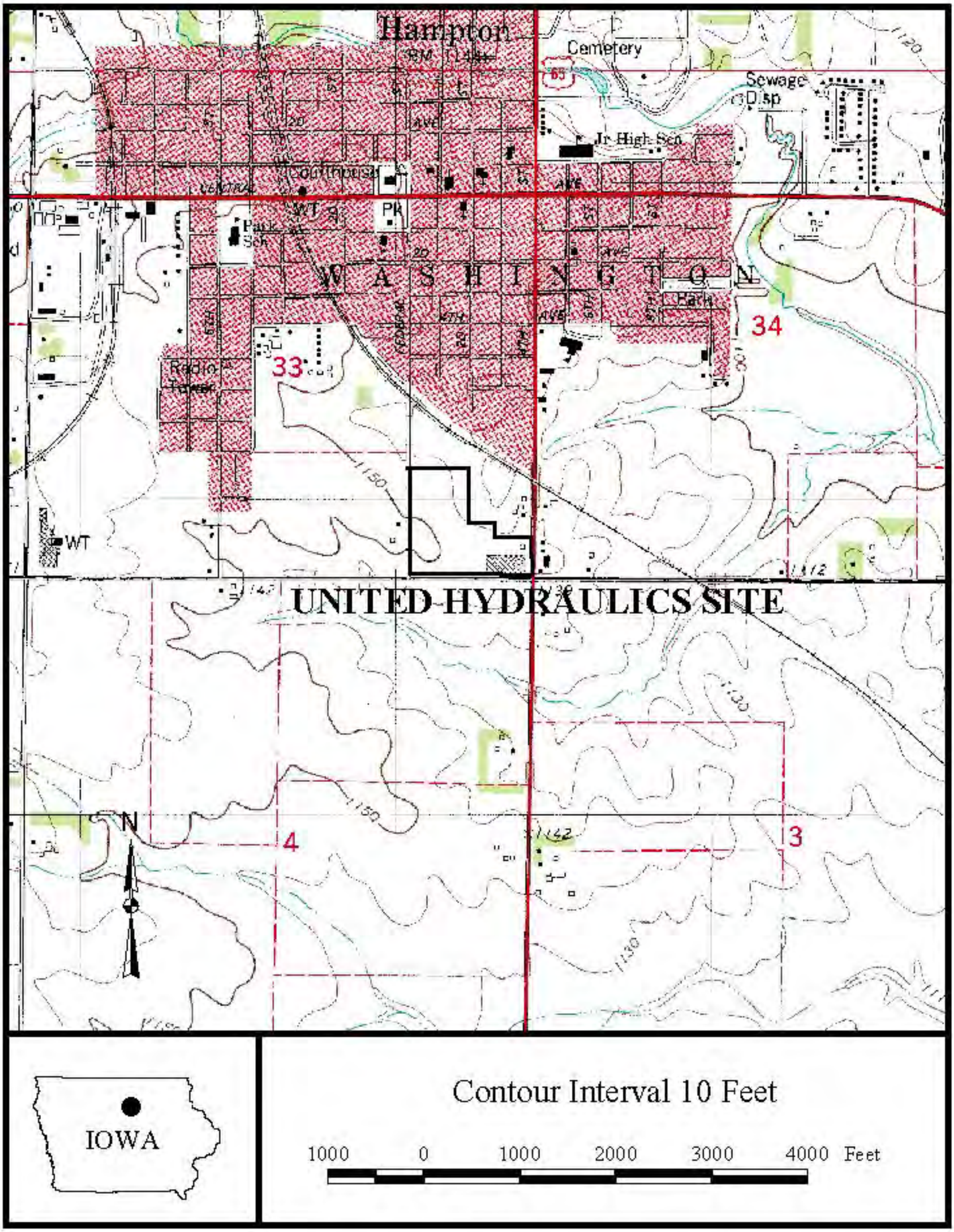


Figure 2-3
ESTIMATED EXTENT OF TVOC AND CHROMIUM ZONE A
JUNE 2006

(United Hydraulics)