CON 12-15: NORTH STAR STEEL-WILTON #1295

Apex environmental, inc.®

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November 19, 1998

CON 12-15
Doc #16346

Ms. Mary Kay Rogge
Iowa Department of Natural Resources
Solid Waste Division
900 E. Grand Ave.
Wallace State Office Building
Des Moines, Iowa 50309

RE: North Star Steel, Pedestal Crane Area LNAPL Report, Wilton, Iowa.

Dear Ms. Rogge:

As agreed to and communicated in North Star Steel's letter addressed to you dated August 18, 1998, Apex Environmental, Inc. has completed LNAPL related activities and submits this letter report of it's findings.

INTRODUCTION/BACKGROUND

Apex Environmental, Inc. (Apex) was contracted by North Star Steel (NSS) to perform free product recovery assessment activities related to NSS's former Pedestal Crane operation in the scrap steel shredding area at it's Wilton, Iowa plant. The activities were performed in response to LNAPL found in one monitoring well during site assessment activities performed by Fluor Daniel GTI and Terracon, and previously reported in a document dated April 30, 1998. The site assessment was completed in response to a hydraulic oil release from a former Pedestal Crane operation.

The results of the investigation detected isolated BTEX concentrations in groundwater likely from past scrap operations in this area, and LNAPL (hydraulic oil) in MW-3. Figure 1 presents a site map indicating the location of the investigative borings and wells. Apex attempted to recover LNAPL from MW-3 using a high vacuum truck in July 1998 but found MW-3 to be damaged beyond repair. Based on this damaged well, a conference call was held as summarized in the August 19, 1998 NSS letter provided as Appendix A.

Based on the actions agreed to, Apex replaced MW-3 and checked the well weekly for 7 weeks following its installation (one additional week to the six weekly visits agreed to was performed). Apex recorded the accumulated LNAPL thickness, performed tests to determine LNAPL accumulation and recoverability, and performed recovery of LNAPL during site visits. The results of these activities are presented in the sections that follow.

REPLACEMENT WELL

Monitoring well MW-3 was replaced on 9-12-98 with a 4-inch diameter steel constructed monitoring well. The well was installed using the hollow stem drilling method. The well installed to a depth of 11 feet below grade and completed with 10 feet of wire wound stainless steel 0.020 inch slotted screen, and approximately 22 inches of black iron riser pipe. The shallow screened interval is necessary as the water table is very shallow in this area. Figure 2 presents a site map indicating the location of the replacement well labeled MW-3R. A well construction log is provided in Appendix B.

LNAPL SITE CHECKS

Following the installation of the replacement well, development of the well was performed through removal of approximately 50 gallons of groundwater. Development water was contained and treated through the NSS on site wastewater treatment plant. LNAPL was not detected during or after development of MW-3R, which was completed on 9-12-98.

Monitoring well MW-3R was checked weekly for a 7-week period for the presence or absence of LNAPL. The well was measured for liquid levels with an electronic interface probe capable of detecting LNAPL and water to an accuracy of 0.01 feet. The results of liquid level data collected from MW-3R, during the site checks, are provided in Table 1. The greatest thickness recorded during the measurements was 0.18 feet on 10-2-98 and 10-23-98. When LNAPL was detected, it was removed through manual bailing. Diminimus quantities of LNAPL were recovered during the period of activities (less than a half gallon). The last site check was performed on 10-30-98 resulted in the detection of 0.05 feet of LNAPL.

TABLE 1
MONITORING WELL MW-3R GAUGING DATA

DATE	DTP	DTW	LNAPL THICKNESS	LNAPL REMOVED	NOTES
9/12/98	ND	4.35'	ND	0	Well Installed & Developed
9/18/98	ND	1.98'	ND	0	4" Rain 9/14
9/25/98	ND	2.21'	ND	0	LNAPL Globules Obs. During Development
10/2/98	2.55'	2.73'	0.18'	8 ounces	LNAPL Recharge Test
10/9/98	1.83'	1.91'	0.08'	0	LNAPL Accumulation Test
10/16/98	2.53'	2.69'	0.16'	8 ounces	
10/23/98	1.01'	1.19'	0.18'	8 ounces	
10/30/98	1.88'	1.93'	0.05'	4 ounces	

DTP = Depth to Product DTW = Depth to Water ND = No LNAPL Detected

LNAPL EVALUATION

Two LNAPL recovery evaluation tests were performed. The first test included the performance of a passive LNAPL recharge test. The second consisted of a dynamic water table depression and LNAPL accumulation test. The details of the tests are provided herein.

The first test, a LNAPL recharge test, was performed on 10-2-98 to help determine recoverability. LNAPL was removed paying special attention to only remove LNAPL with as little water as possible. 8 ounces of LNAPL were removed such that no detectable LNAPL remained. Next, the well was gauged every 15 minutes for a period of 1 hour. Recharge of LNAPL was measured to be insignificant and by the end of the test 0.02 feet of LNAPL had recharged into the well. Table 2 presents the results for the LNAPL recharge test.

TABLE 2
LNAPL RECHARGE TEST DATA

TIME	DTP	DTW	LNAPL THICKNESS
15:32	2.55'	2.73'	0.18' Before Removal
15:55	ND	3.00'	ND
16:10	ND	2.82'	ND
16:25	2.71'	2.72'	0.01'
16:40	2.66'	2.67'	0.01'
16:55	2.61'	2.63'	0.02'

DTP = Depth to LNAPL DTW = Depth to Water ND = No LNAPL Detected

The second test, a LNAPL accumulation test, was performed on 10-9-98. The test duration was 60 minutes and included the pumping of groundwater to create a cone of depression for LNAPL to potentially accumulate within. The initial LNAPL thickness and depth to water was recorded prior to running the test. The well was pumped at a low flow rates (all less than ½ gallons per minute). Liquid level measurements were recorded approximately every 5 minutes to determine whether appreciable accumulation of LNAPL would occur. The results indicated that LNAPL did not accumulate from inducing hydraulic depression. Data collected during the test are presented in Table 3.

TABLE 3
LNAPL ACCUMULATION TEST DATA

TIME	DTP	DTW	DD	LNAPL THICKNESS	CHANGE IN THICKNESS	PUMPING RATE
16:00	1.83'	1.91'	0.00'	0.08'	NA	STATIC
16:10	2.93'	3.01'	1.10'	0.08'	0.00'	0.2 GPM
16:15	3.14'	3.20'	1.29'	0.06'	-0.02'	0.2 GPM
16:20	3.55'	3.63'	1.72	0.08'	0.00'	0.2 GPM
16:25	3.86'	3.93'	2.02'	0.07'	-0.01'	0.33 GPM
16:30	3.95'	4.01'	2.10'	0.06'	-0.02'	0.33 GPM
16:35	4.48'	4.55'	2.64'	0.07'	-0.07'	0.33 GPM
16:40	5.07'	5.15'	3.24'	0.08'	0.00	0.33 GPM
16:45	6.03'	6.12'	4.21'	0.09'	0.01'	0.5 GPM
16:50	7.01'	7.09'	5.18	0.08'	0.00'	0.5 GPM
16:55	9.30'	9.38'	7.47'	0.08'	0.00'	0.5 GPM
17:00	9.13'	9.21'	7.30'	0.08'	0.00'	0.5 GPM
17:20	6.51'	6.60'	4.69'	0.09'	0.01'	OFF

DTP = Depth to Product DTW = Depth to Water NA = Not Applicable
DD = Water Table Draw Down GPM = Gallons Per Minute

All groundwater pumped during the testing was contained and treated through the NSS on site wastewater treatment plant.

CONCLUSIONS

Based on the results of the product recharge test, the product accumulation test, the small amounts of LNAPL found at the site, and the site investigation results performed earlier this year, the LNAPL quantity is diminimus and its recoverability is poor. Therefore, further recovery of LNAPL at the site would be futile.

We estimate the volume of LNAPL is less than 20 gallons. This conservative estimate is based on the apparent thickness observed, assumes an actual thickness of 0.10 feet in an affected area estimated to be 80 square feet, and an effective porosity of 30%.

Finally, the toxicity of the LNAPL is low based on the low BTEX values (less than drinking water standards) detected in the groundwater from MW-3 during assessment activities performed earlier this year.

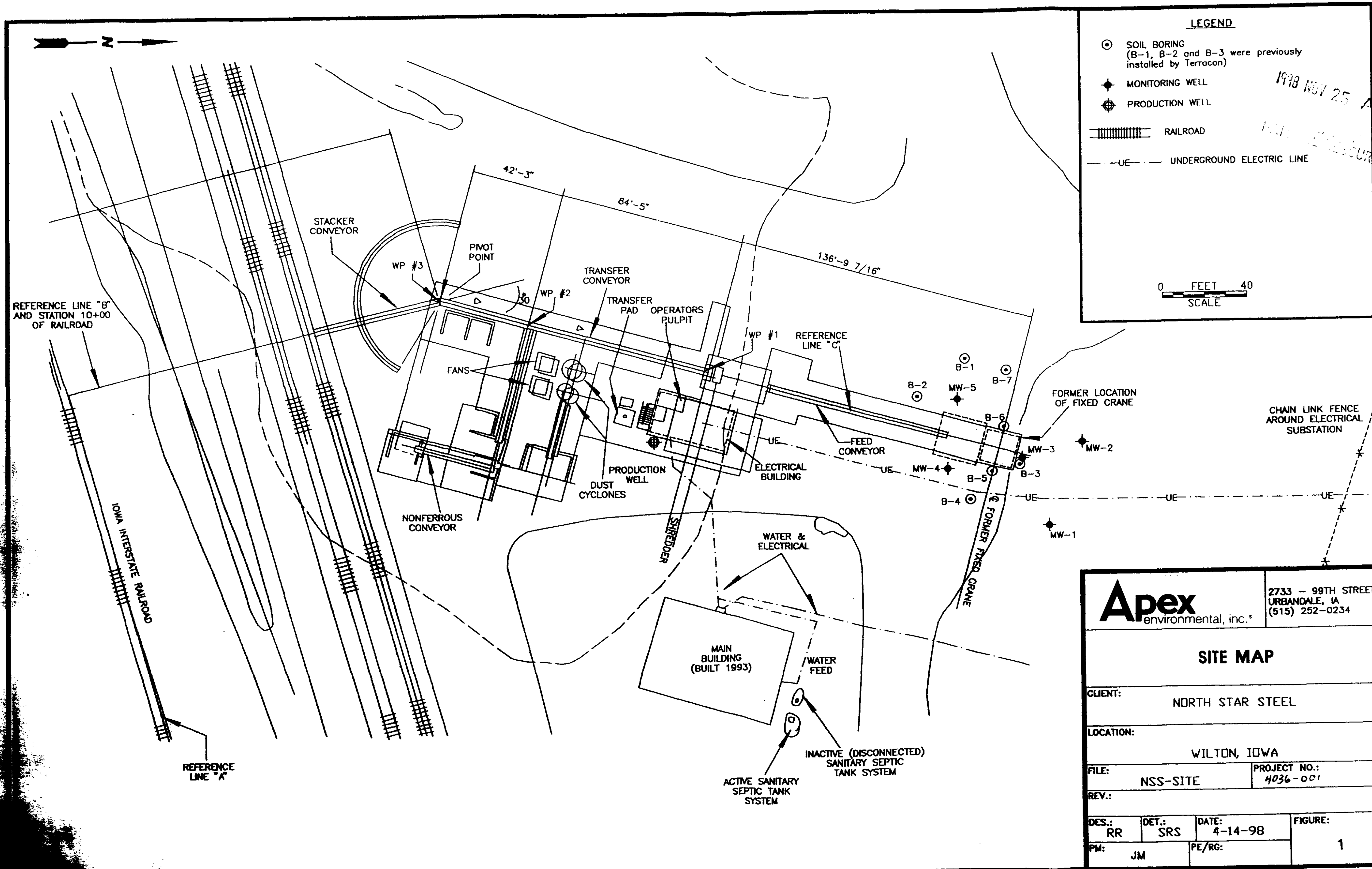
Because of these facts, we respectfully request no further action be granted with regard to the hydraulic oil release related to the former Pedestal Crane are at the North Star Steel Wilton, Iowa plant.

We appreciate your consideration given to this matter. Should you have any questions, please contact Mr. David Bozaan (NSS) at (319)-732-4585 or me at (515)-727-8025, respectively.

Sincerely,
Apex Environmental, Inc.

James Marek, CPG
Operations Manager

c David Bozaan – NSS, Wilton, Iowa
Ron Phillips – NSS, Wilton, Iowa
Mark Van Der Veer – NSS, Wilton, Iowa
Chris Avent – NSS, Eagan, Mn.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LEGEND
SOIL BORING (B-1, B-2 and B-3 were previously installed by Terracon)
MONITORING WELL
PRODUCTION WELL
RAILROAD
UE UNDERGROUND ELECTRIC LINE
0 FEET 40
SCALE
42'-3"
84'-5"
136'-9 7/16"
STACKER CONVEYOR
PIVOT POINT
WP #3
WP #2
WP #1
TRANSFER CONVEYOR
TRANSFER PAD
OPERATORS PULPIT
REFERENCE LINE "C"
REFERENCE LINE "B" AND STATION 10+00 OF RAILROAD
FANS
PRODUCTION WELL
DUST CYCLONES
NONFERROUS CONVEYOR
SHREDDER
ELECTRICAL BUILDING
FEED CONVEYOR
B-1
B-2
B-3
B-4
B-5
B-6
B-7
MW-1
MW-2
MW-3
MW-4
MW-5
FORMER LOCATION OF FIXED CRANE
℄ FORMER FIXED CRANE
CHAIN LINK FENCE AROUND ELECTRICAL SUBSTATION
UE
IOWA INTERSTATE RAILROAD
REFERENCE LINE "A"
WATER & ELECTRICAL
MAIN BUILDING (BUILT 1993)
WATER FEED
ACTIVE SANITARY SEPTIC TANK SYSTEM
INACTIVE (DISCONNECTED) SANITARY SEPTIC TANK SYSTEM

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RESOURCES

Apex environmental, inc.

2733 – 99TH STREET
URBANDALE, IA
(515) 252-0234

SITE MAP

CLIENT: NORTH STAR STEEL

LOCATION: WILTON, IOWA

FILE: NSS-SITE		PROJECT NO.: 4036-001	
REV.:			
DES.: RR	DET.: SRS	DATE: 4-14-98	FIGURE: 1
PM: JM		PE/RG:	

N

LEGEND

- SOIL BORING (B-1, B-2 and B-3 were previously installed by Terracon)
- MONITORING WELL
- PRODUCTION WELL
- RAILROAD
- UE — UNDERGROUND ELECTRIC LINE

0 FEET 40
SCALE

42'-3"
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B-1
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FORMER LOCATION OF FIXED CRANE
CHAIN LINK FENCE AROUND ELECTRICAL SUBSTATION
MW-3
MW-2
MW-4
B-5
B-3
MW-3R
B-4
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REFERENCE LINE "A"

Apex environmental, inc.
2733 - 99TH STREET
URBANDALE, IA
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SITE MAP

CLIENT: NORTH STAR STEEL

LOCATION: WILTON, IOWA

FILE: NSS-SITE | PROJECT NO.: 4036-001

REV.:

DES.:	DET.:	DATE:	FIGURE:
RR	SRS	4-14-98	2

PM: JM | PE/RG:

VIA FACSIMILE AND MAIL

August 19, 1998

Ms. Mary Kay Rogge
Iowa Department of Natural Resources
Solid Waste Division
Wallace State Office Building
900 E. Grand Avenue
Des Moines, Iowa 50319

Subject: Conference Call Summary
Former Pedestal Crane Area
North Star Recycling - Wilton, Iowa

Dear Ms. Rogge:

This letter confirms our recent conversation on the conference call between you, North Star Recycling (NSR), and Apex Environmental, Inc. (Apex) regarding environmental activities at the Former Pedestal Crane Area. Below is a summary of the items we discussed and agreed upon.

Review of Site Conditions

1. BTEX contamination found in MW-2 is a likely remnant of past scrap vehicle operations at the site, and is considered a non-point source. No source of BTEX contamination (such as UST or AST) exists in this area.

2. The dissolved BTEX concentrations detected in groundwater samples from monitoring well MW-3 were below drinking water standards. MW-3 contained light non-aqueous phase liquids (LNAPL) determined to be hydraulic oil. Therefore, the hydraulic oil loss to the subsurface is not acting as a source of BTEX contamination.

3. The nearest potential receptor to the dissolved BTEX found in MW-2 and the LNAPL detected in MW-3, is the production well located approximately 160 feet south-southeast of MW-3. Monitoring well MW-4 is located between the potential receptor (production well), as well as MW-3 and MW-2. The Iowa RBCA Tier 1 clean-up level for benzene in non-drinking water wells is 290 ppb. MW-4 can be considered a guard well for the potential receptor, and

contains approximately 20 ppb benzene, which is one order of magnitude less than the action level for non-drinking water wells. For drawings of these areas, please refer to the maps shown in Figures 3 and 5A of the *Subsurface Investigation Report, Former Pedestal Crane Area*, prepared by Fluor Daniel GTI and dated April 30, 1998.

4. The dissolved benzene concentrations down hydraulic gradient from MW-2 measured were below detection limits for in SB-7, and 13 ppb for MW-5. These concentrations are below Iowa RBCA Tier 1 action levels for a non-drinking water well, and indicate that the benzene detected in MW-2 is isolated. This supports the notion of a non-point source.

5. A review of the geology and hydrogeology characterized during the assessment shows that the water table aquifer in the Pedestal Crane Area is separated hydraulically from the aquifer supplying the production well. This statement is based on the groundwater flow direction of the water table trending west-southwesterly, and the production well located south-southeast of the monitoring well network at the site. The groundwater table isopach does not appear hydraulically influenced by the pumping of the production well. Also, review of the stratigraphic logs of the monitoring wells and soil borings drilled in the area indicates the presence of a tight clay deposit at approximately 15 feet below grade which appears to confine the saturated surficial deposits from vertical hydraulic connection. This observation is again supported by the lack of hydraulic influence of the water table by the operation of the production well.

6. The only other potential receptor in the area is Mud Creek, located approximately 500 yards to the south of the area. This receptor is not threatened.

LNAPL Recovery Efforts

In early July 1998, NSR attempted LNAPL recovery using MW-3. However, MW-3 was found to be sheared-off as a result of site operations, and the recovery effort was terminated. Below is a list of future actions agreed upon during the conference call:

1. Replace monitoring well MW-3 with a 4-inch diameter steel monitoring well, with concrete-reinforced well head to prevent damage from site operations.

2. Develop the replacement well and allow it to stabilize for one week.

3. Gauge well and measure occurrence and thickness of LNAPL. If LNAPL exists, perform a bail-down and LNAPL recharge test.

4. The LNAPL appears to be an isolated pocket, and the water table is currently very shallow, extending up into the coarse slag materials that mantle the

subject area. If LNAPL is found to exist, LNAPL removal will be performed with a dual-phase vacuum truck.

5. Submit a report of the well replacement and LNAPL recovery results to IDNR.

6. After the LNAPL removal effort is completed, perform weekly LNAPL product reoccurrence checks for 6 weeks. If no reoccurrence is observed, submit results of the LNAPL checks to IDNR with a request for "no further action." If LNAPL reoccurrence is found to persist, work with your department to appropriately address the condition.

NSR appreciates your time and cooperation in this effort. Please call me at (319) 732-4585 with any questions you may have.

Sincerely,

David Bozaan
Regional Environmental Manager

Cc: Chris Avent, NSS
Mark Van Der Veer, NSR
Ron Phillips, NSS
Jim Marek, Apex

SOIL BORING LOG & MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well # MW-3R	Facility Name NORTH STAR STEEL	Facility Address Highway 38, Wilton, Ia
Boring Depth (feet) x Diameter (inches) 11.0' x 12"		Drilling Method
Well Contractor Registration # Rewerts Well Drilling # 40280		Logged By Jim Bahle
Date 9/12/98 Start 8:30	Date 9/12/98 End 10:15	Ground Surface Elevation (ASL) NM	Case Number NA

Depth in Feet	Well Construction Details	Blow Count If Applicable	Sample No.	Sample Type*	PID/FID Reading	Rock Formations, Soil, Color and Classifications, Observations (moisture, etc.)
2 —	8' x 2' concrete pad					
0 —	bentonite seal					Concrete Pad built 2 feet above grade
2 —						
4 —	▽					0 - 5' Non-retrieval (intentional due to slag existence)
6 —	steel well screen					5' - 8' Non-retrieval
8 —	sand filter pack					8' - 9' Dark Gray, saturated, fine to medium grained, medium sorted SAND 9' - 10'Dark gray, low plasticity, medium stiff wet, silty CLAY 10' - 11' Olive gray to dark gray,hi plasticity very stiff, dry to damp, CLAY with fine to medium grained sand. Glacial till. BOTTOM OF BORING @11"
10 —						
11 -						

* SS (split spoon) *HS (hollow stem auger) *HA (hand auger)

OBSERVATIONS	Date:	9/12/98					
WATER LEVELS	Level:	4.35'					
Static Water Level Symbol ▽	Time:	10:30					