NINE SPRINGS
ENVIRONMENTAL CONSULTANTS, Inc.

DCN: Truax 3 26035
Title: RA Summary Report and Site Closure Request (Site 4)
ARF Final 05 Apr 1994

April 5, 1994

Mr. Michael Schmoller
WDNR - Southern District
3911 Fish Hatchery Road
Madison, Wisconsin 53711

RE: Remedial Action Summary Report and Site Closure Request
Truax Field Soil Remediation (Southwest of Building 412)
Wisconsin Air National Guard
Madison, Wisconsin

Dear Mr. Schmoller:

Nine Springs Environmental Consultants, Inc. (Nine Springs) is pleased to present this report for the subject project on behalf of Mead & Hunt and the Wisconsin Air National Guard (WANG). All site activities and soil sampling described in this report was conducted by Sen-Tech Environmental, Ltd. (Sen-Tech). Nine Springs was retained to perform periodic quality assurance inspection and, in conjunction with Sen-Tech's reported analytical and operations data/documentation, to prepare this final summary report.

1.0 INTRODUCTION AND BACKGROUND

Soil contamination was initially found in the subject area during a geotechnical investigation conducted by Mead & Hunt for a project to reconstruct the WANG apron (see Figures 1 and 2). Mead & Hunt personnel noted that petroleum odors were emitted from soil samples collected from the geotechnical borings. The olfactory detection of soil contamination led to Mead & Hunt retaining an environmental consulting firm to conduct a site investigation in the area surrounding the WANG apron. The site investigation resulted in the identification of two areas of soil and/or groundwater contamination. The two areas identified were the soils beneath the existing fighter jet parking ramp (Area 1) and the soils located southwest of Building 412 and north of Building 414 (Area 2). The contamination apparently was caused by leaks in a previously abandoned jet fuel transfer line which is adjacent to the two areas identified. A remedial action plan (RAP) was developed which was subsequently approved by the Wisconsin Department of Natural Resources (WDNR) Southern District. More information is available regarding the site background in Dames & Moore's Subsurface Investigation Report (July 29, 1992) and Remedial Action Plan for Soils (November 2, 1992).

Based upon the findings in the above referenced reports, design plans and specifications were prepared by Mead & Hunt for performance of the soil remediation at Area 2. The projected volume of soil to be remediated at Area 2 was 3,000 yd^3. The perimeter of contaminated soil at Area 2 was not known; however, the depth to groundwater was known to be 5 to 6 feet below ground surface. WDNR approval was given to excavate and remediate the soils to the depth of the groundwater. The perimeter was estimated for bidding purposes, a request for proposal was

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published, bids were received and a remediation contract was awarded. The remainder of this report will summarize the subsequent remedial action.

2.0 SITE ACTIVITIES

2.1 Site Activities Overview

Sen-Tech (13333 S. Cicero Ave., Crestwood, IL 60445) was awarded the bid to remove the contaminated soil from the affected area southwest of Building 412 and remove the contaminants from the soil utilizing low temperature thermal desorption (LTTD) technology. The site activities took place during the time period from October 28, 1993, to December 1, 1993 the soil at the subject project site was excavated from Area 2, separated, by field screening, into contaminated and potentially clean soil stockpiles. Contaminated soil was treated, clean and treated soils were backfilled in the excavation and verification samples were collected/analyzed as per WDNR requirements.

As stated above, once the soil was excavated a determination was made as to whether the soil was contaminated or clean. The contaminated soil was processed through the on-site LTTD operation. The potentially clean soil was placed in 15 yd^3 stockpiles and a sample from each pile was field screened for benzene, toluene, ethylbenzene, and xylenes (BTEX). If the sample from the 15 yd^3 pile indicated the presence of BTEX contaminants, the soil was taken to the contaminated stockpile for treatment. If the sample from the 15 yd^3 pile did not indicate the presence of BTEX contaminants, the soil was combined with similar "clean" soil piles into a 100 yd^3 pile for composite testing.

The LTTD process involved the following unit operations for effective soil remediation in compliance with WDNR solid waste and air management regulations (see photo log):

- Materials Handling
  - Large track backhoe and front endloader for excavation and/or transfer of contaminated, potentially clean and treated soils.
  - Soil feed hopper(s) and transfer conveyors (to the inlet and from the discharge point of the processing drum).
- Soil Treatment
  - Soil processing drum, with burner, for thermal desorption of the contaminants from the contaminated soil.

- Air Pollution Control

  - Baghouse for filtering the fine particulate in the processing drum off-gases.
  - Thermal oxidizer for destruction of the contaminants in the off-gases. The contaminants in the off-gas were thermally desorbed from the contaminated soil during treatment.

The field log for daily operations and the temperature strip chart for the thermal oxidizer were requested to be included with this report. These items are found in the appendix.

2.2 Soil Sampling

The purpose of the soil sampling and analysis performed during the remediation project was to provide the necessary documentation to evaluate the effectiveness of the soil remediation activities at the site. Therefore, the proper procedures were required to be followed and documented on a per sample basis. This included not only following the WDNR published guidance for soil sampling (WDNR LUST and Petroleum Analytical and Quality Assurance Guidance, July 1993 -PUBL-SW-130 93) but also the site specific procedures listed in the WDNR approved RAP. Exceptions to following the procedures were deemed necessary and appropriate approval was obtained from the site project manager(s) and the WDNR project manager during a site visit to inspect the LTTD operation. The exceptions were as follows:

- Initial characterization of the excavated soil could take place using a photoionization detector (PID) instead of each 15 yd^3 pile requiring a field gas chromatograph (GC) headspace test. This allowed the soils which were obviously contaminated to be processed without being initially tested; however, the potentially clean soils were still handled and tested as per the specification with every 15 yd^3 pile being screened using the field GC. This exception was necessary due to there being obvious contaminated soils which would have overloaded the field GC.

- The method of analysis utilized for the field GC screening of the potentially clean soils was the modified gasoline range organics (GRO) method instead of the headspace as specified. The GRO method is more reliable because it involves methanol extraction of the contaminants in the soil instead of simply drawing a headspace sample from the air above the soil sample. It should be noted that all field screening for potentially clean soil stockpiles was verified, as per the requirements specified on the WDNR Form 4400-149 (Application to Thermally Treat Contaminated Soils) by a state certified laboratory.

- The compounds, in addition to BTEX, which were listed in the RAP to be field screened were the halogenated compounds 1,2 dichloroethane, trichloroethene, tetrachloroethane. The BTEX constituents were analyzed for during the GC field screening but the halogenated compounds were not required to be field screened.

During the soil excavation, stockpiling and treatment, samples were collected and suitably analyzed for the following reasons:

- Determine if excavated soil was clean and could be utilized as excavation backfill without any treatment.
- Determine if excavated soil was contaminated with petroleum and trace chlorinated constituents and needed to be treated to thermally desorb the contaminants.
- Determine the extent of excavation, as it applies and was approved by the site project manager.
- Determine if the treated soil had been sufficiently thermally desorbed of contaminants for use as excavation backfill.
- Determine if the treated soil had not been sufficiently thermally desorbed of contaminants and therefore required further treatment.

In order to accomplish the determinations listed above, a combination of soil sampling, soil headspace field screening (using a GC) and WDNR certified laboratory soil analysis was employed. All soil excavated as part of this project was sampled by the general criteria stated in the Mead & Hunt specification. Soil samples were taken using a suitable auger or trowel such that the sample was minimally exposed to ambient air while the sample was placed in a proper container. The determination of a suitable container was based on the appropriate guidance documents.

2.3 Sample Equipment Decontamination

The soil sampling equipment was required to be decontaminated after each sample as per the following procedure:

- Prior to sampling, scrub the sampling equipment and/or sampling tools in a bucket using a stiff, long bristle brush and Liquinox or Alconox solution.

- Rinse the scrubbed sampling equipment with tap water (from a source known to not be contaminated) and triple rinse with distilled water.

- Place the clean equipment in a clean area on plastic and cover with aluminum foil.

- Containerize all water and rinseate used in the decontamination process.

Reserve sampling equipment was provided to allow proper decontamination while excavation and sampling operations were underway.

3.0 ANALYTICAL REQUIREMENTS AND RESULTS

Soil sampling field and laboratory analytical requirements were provided to Sen-Tech with the request that they be fulfilled in accordance with WDNR and DILHR guidance, the Dames & Moore RAP and Mead & Hunt Project Specifications. Specific procedures which reflect accepted professional standards were also provided in the form of the Sampling and Analysis Plan prepared by Nine Springs (October 1993).

3.1 Field Screening for VOC

Proper laboratory procedures, calibration frequency/concentrations, duplicate analyses and proper quality assurance procedures were stipulated to be followed by a qualified individual using appropriate equipment. Sen-Tech retained the services of JMS Environmental (Westmont, IL) to perform the necessary on-site field screening and soil sample collection/preparation. The manufacturer and model number of the field GC was Trimetrics 540 (with PID type sensor).

As presented in Section 2.0, the potentially clean soils were field screened for BTEX contaminants. The following general methodology was employed for each soil sample which was field screened:

- Collect 25 grams of soil and place in a glass bottle with a teflon septum.

- Add methanol (purge and trap grade) for the extraction.

- Sonicate for 20 minutes in a warm water bath and allow particulates to settle in the methanol.

- Withdraw 2 microliters of extractant and inject into the properly calibrated GC.

3.2 Laboratory Analytical Requirements

Soil sample analytical requirements were provided, in detail, in the Mead & Hunt Project Specification. General requirements included:

- Proper quality control procedures were to be followed;
- Cross contamination and exposure to contaminated vapors were to be minimized;
- Proper mapping was required where individual samples were taken from the excavation on both the horizontal and vertical coordinates;
- Special care was taken when handling the methanol preservation required for GRO analyses.
- Chain of Custody procedures were to be followed:
- Proper sample holding times and preservation (i.e., cold temperature) storage methods were to be adhered to;
- Documentation of headspace results including other necessary information was required; and
- Other generally accepted procedures were to be followed (as provided for in the documents attached to the Sampling and Analytical Plan and as accepted in the industry).

The analytical tests required were as follows:

- 48 hour laboratory turnaround time for soil samples collected from the potentially clean soils (100 yd^3 pile composite) and excavation sidewall soils were requested to be tested for:
  - GRO: Wisconsin Modified GRO Method
  - DRO: Wisconsin Modified DRO Method
- One week laboratory turnaround time for soil samples collected from the thermally treated soil (300 yd^3 pile composites) were requested to be tested for:

- GRO: Wisconsin Modified GRO Method
- DRO: Wisconsin Modified DRO Method
- PVOC: EPA Method 5030/8020
- PAH: EPA Method 8310
- Lead: EPA Method 3050/6010
- Cadmium: EPA Method 3050/6010

Note: PAH = Polynuclear Aromatic Hydrocarbons
PVOC = Petroleum Volatile Organic Compounds

The actual turnaround time of the soil sample analytical results varied widely from the specified requirements of 48 hours or 1 week. The reason given by the Wisconsin certified laboratory, Suburban Laboratories (Hillside, IL & Waukesha, WI) was having more samples than their facility could turnaround in the required time. It appears that there were no sample holding time exceedances.

Additional testing was performed on the contaminated soil which was not required.

3.3 Analytical Results Interpretation

The analytical results are presented in Tables 1-5 as follows:

Table 1 - Excavated Contaminated Soil Sample Results (Prior to Treatment)
Table 2 - Excavated Clean (100 yd^3 Pile Composite) Soil Sample Results
Table 3 - Treated (300 yd^3 Pile Composite) Soil Sample Results
Table 4 - Excavation Sidewall Soil Sample Results
Table 5 - Trip and Field Blanks (Quality Assurance)

3.3.1 Table 1 Results

As can be seen in Table 1, the contaminated soil had petroleum type constituents present including GRO, DRO, VOC and PAH. The lead and cadmium concentrations were not present at levels above the preventive action limit (PAL).

3.3.2 Table 2 Results

The data presented in Table 2 indicates that five of the ten 100 yd^3 soil piles that were potentially clean soils were determined to be clean. The five soil piles which has results that exceeded the 10 ppm GRO and DRO standard were treated as contaminated soil. Therefore, the 500 yd^3 was processed through the LTTD operation.

3.3.3 Table 3 Results

All of the soils which were treated by the LTTD operation, as presented in Table 3, had results for GRO and DRO that were less than the 10 ppm standard. However, there were some exceedances for VOC, such as benzene (5 of the 14 samples), methylene chloride (3 of the 14 samples), naphthalene (6 of the 14 samples), toluene (2 of the 14 samples) and 1,1,2-trichloroethane (1 of the 14 samples).

During a meeting held between the WDNR, WANG, Mead & Hunt and Nine Springs on December 8, 1993, the preliminary results were discussed. At that time, only the data for VOC for the first four samples in Table 3 was available. Based on that discussion, it was determined that some slight exceedance of the PAL would not be a restriction to site closure but all of the data would need to be reviewed before a final determination could be made. It was further stated that if results came back for the treated soils which were consistent with the first four samples in Table 3, as presented at the 12/8/93 meeting, there may not be a problem with site closure.

3.3.4 Table 4 Results

The soil which remained in place after the excavation was sampled by the criteria of one sample for every 100 lineal feet of excavation perimeter (see Figure 3). A total of eleven sidewall soil samples were collected from eight locations. Three of the sample locations were sampled twice in order to obtain samples from different depths of the excavation sidewall. The three samples with the last four digits of the sample numbers 1201, 1202 and 1203 were sampled at a depth of approximately 5 feet below ground surface (4" above the water in the base of the excavation). The three samples with the last four digits of the sample number 1606, 1607 and 1608 were sampled at a depth of approximately 4 feet below ground surface (10" to 16" above the water in the base of the excavation). A clay layer was present which separated the two sample depths.

During the December 8, 1993, meeting between WDNR, WANG, Mead & Hunt and Nine Springs it was determined that 1555-10-2705, 2706 and 2805 were of concern but the other samples were acceptable and no further action was required. Discussion regarding the three samples of concern indicated that further action may be required but was not specified as to the type of action or timing required. These aspects were to be developed at a later date.

3.3.5 Table 5 Results

The quality assurance samples sent to the laboratory indicated no contamination of the blanks had occurred.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analytical results presented in Tables 1-5 and discussed in Section 3.0, the following conclusions can be made:

- The soil remediation method of low temperature thermal desorption, as applied to the Area 2 soils by Sen-Tech, was effective in reducing the petroleum product contaminants within the soils.

- The excavation of contaminated soil away from the concrete area between buildings 412 and 414 was performed such that the soils that remained in the sidewalls of the excavation could be considered to be within the intent of the WDNR clean up standards.

- The soil remaining beneath the concrete area between Buildings 412 and 414 had contaminant levels which were of concern; however, the decision of how to remediate this area was considered to be separate from the subject project.

A recommendation is therefore made for Mr. Michael Schmoller (WDNR - Southern District) to review this report and subsequently submit a recommendation to the WDNR closure committee for closure of the site soils.

Regards,
NINE SPRINGS ENVIRONMENTAL CONSULTANTS, Inc.

Samuel L. Cooke III, P.E.
Principal/Senior Chemical Engineer

cc: Mr. Dave Elder, Mead & Hunt
Major Keith Geurts, WANG
Captain Ron Sachse, WANG

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PHOTO LOG

1) View, looking northeast, of the northernmost edge of the excavation (beyond the soil piles to the right).

2) View, looking east, of the excavation (during backfilling).

3) View, looking southeast, of the excavation (during backfilling).

4) Eastern corner of the excavation (Note: water at approximate depth of 6 feet).

5) Southern corner of the excavation with Building 414 shown in background.

6) View of the soil feed hoppers.

7) Conveyor which transferred the soil from the feed hoppers to the inlet of the low temperature thermal desorption processing drum.

8) Processing drum (center) with treated soil discharge conveyor (right).

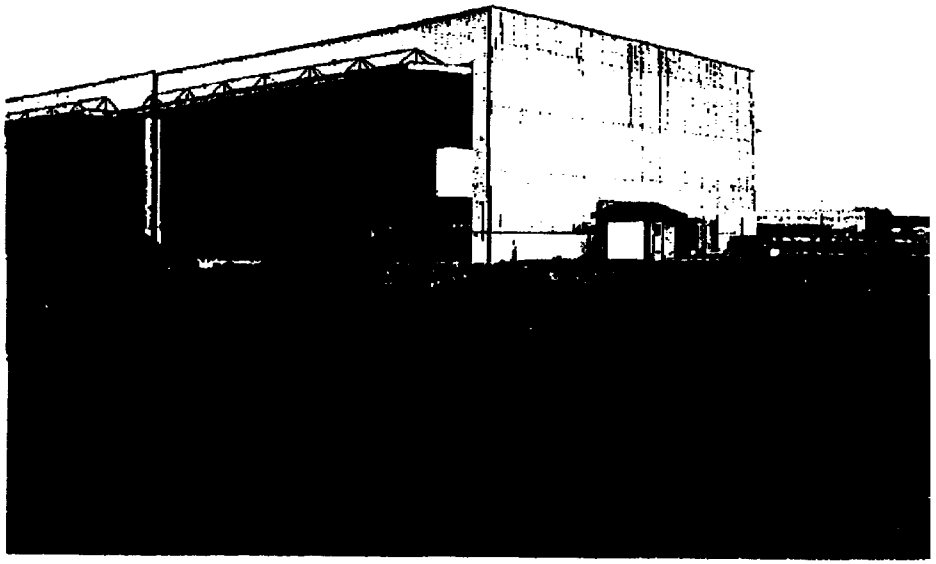
9) Treated soil discharge conveyor and treated soil pile, prior to transferring the treated soil to the main storage pile.

10) Treated soil main stockpile.

11) Baghouse (for removal of particulate from off-gas).

12) After burner (for destruction of contaminants desorbed from the soil).

2)



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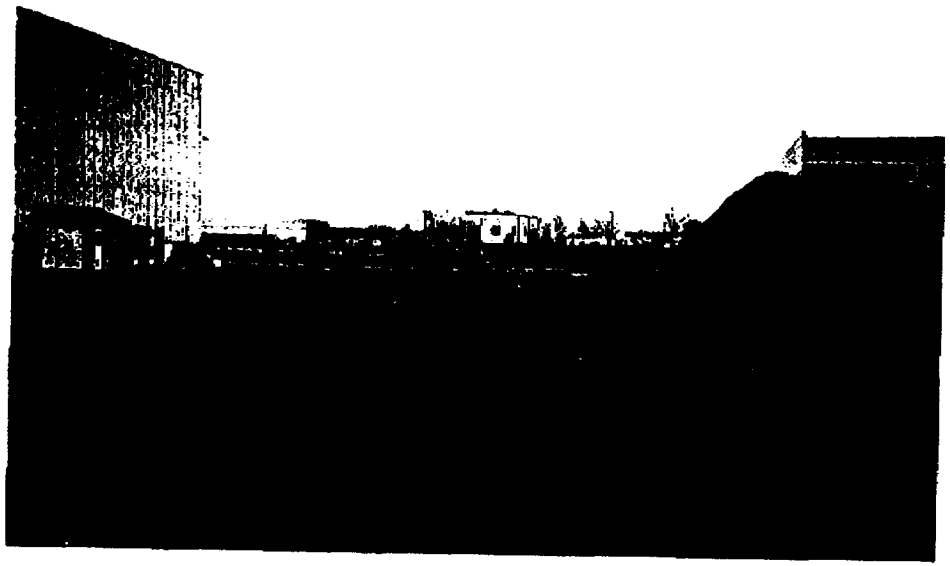

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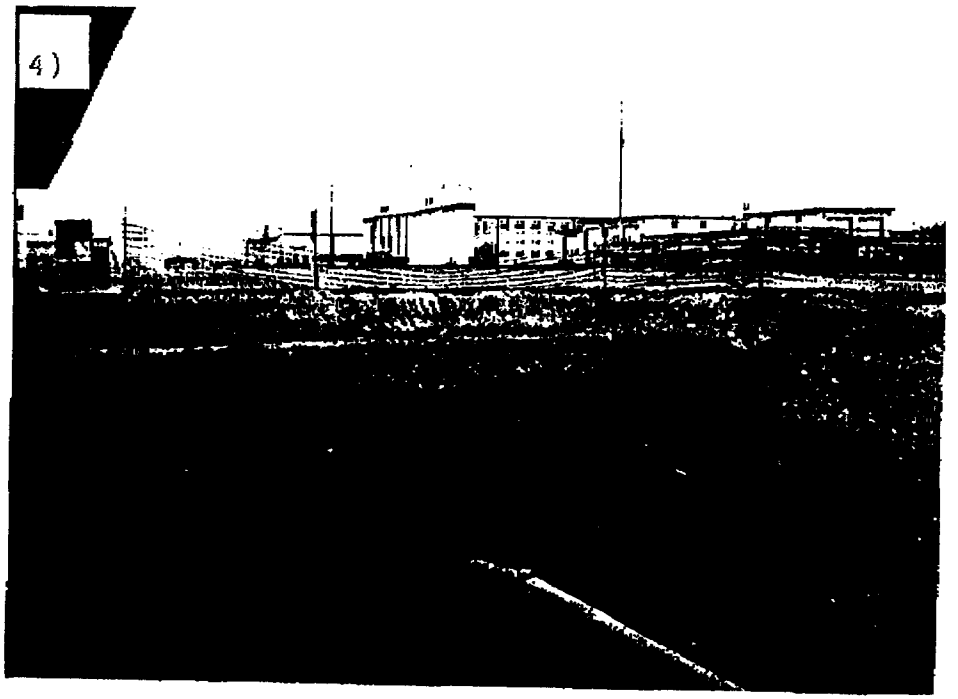

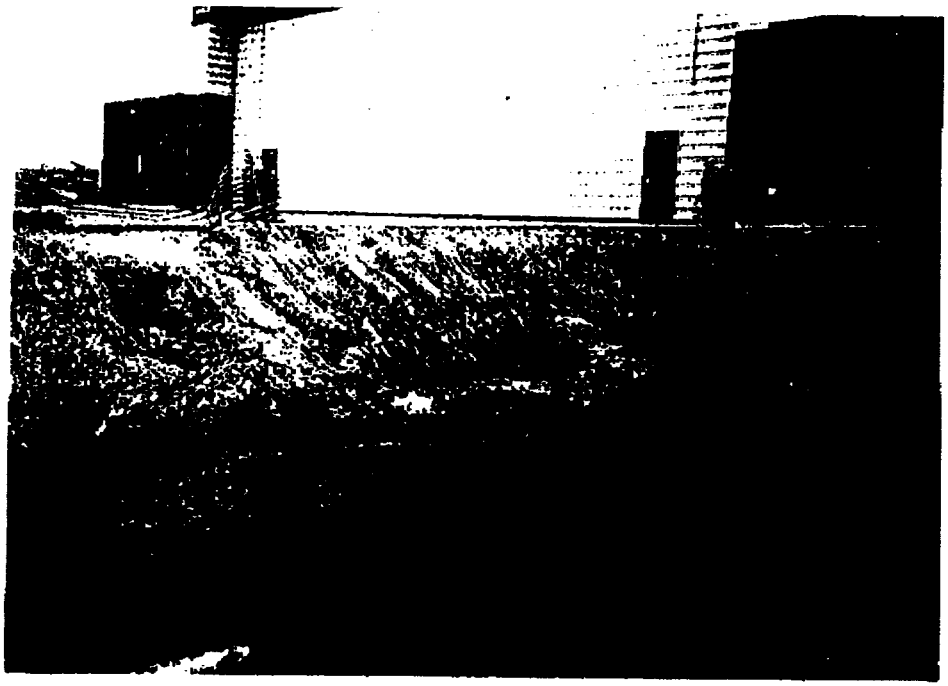

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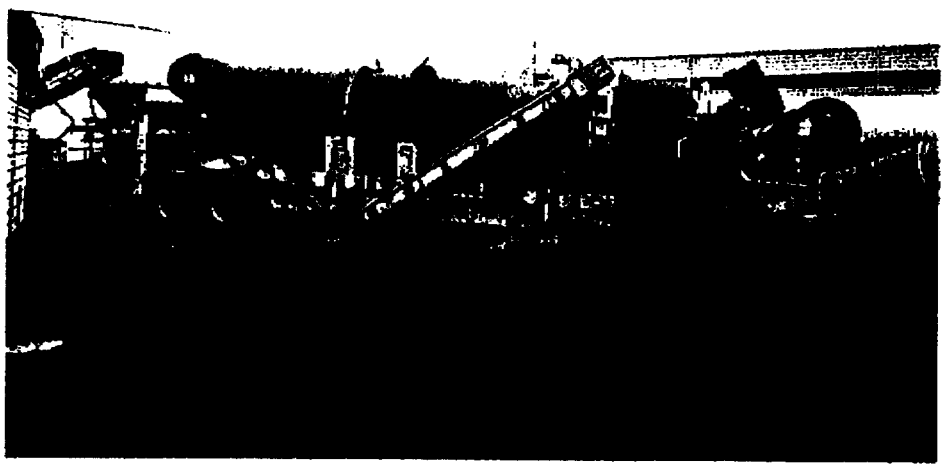

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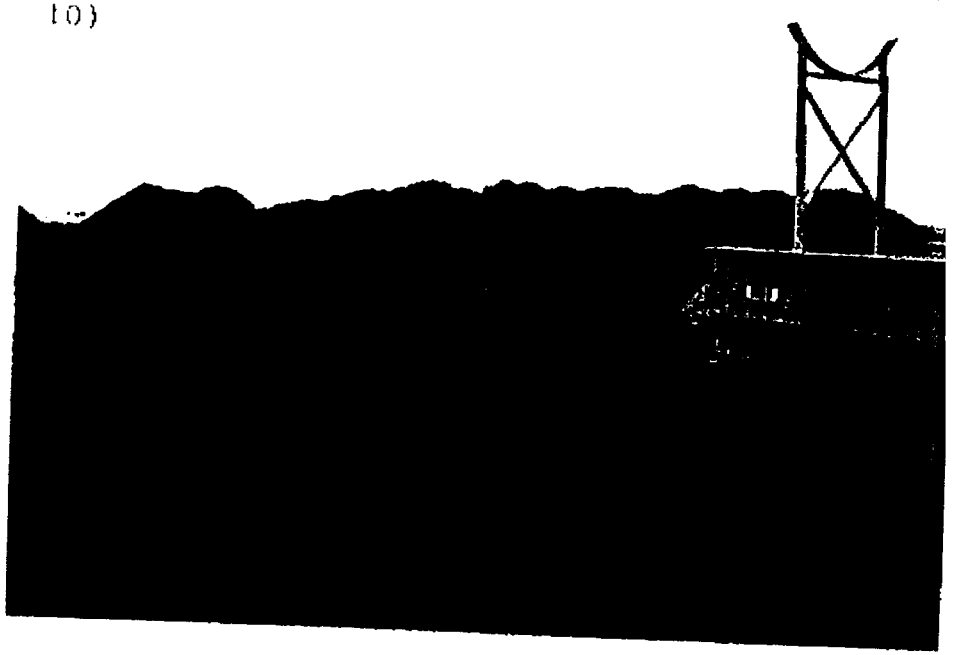

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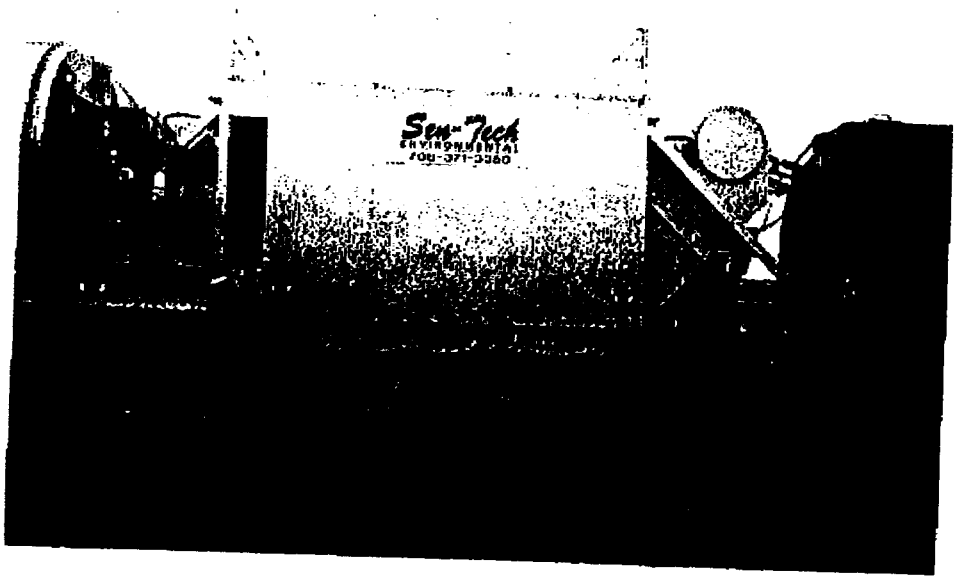

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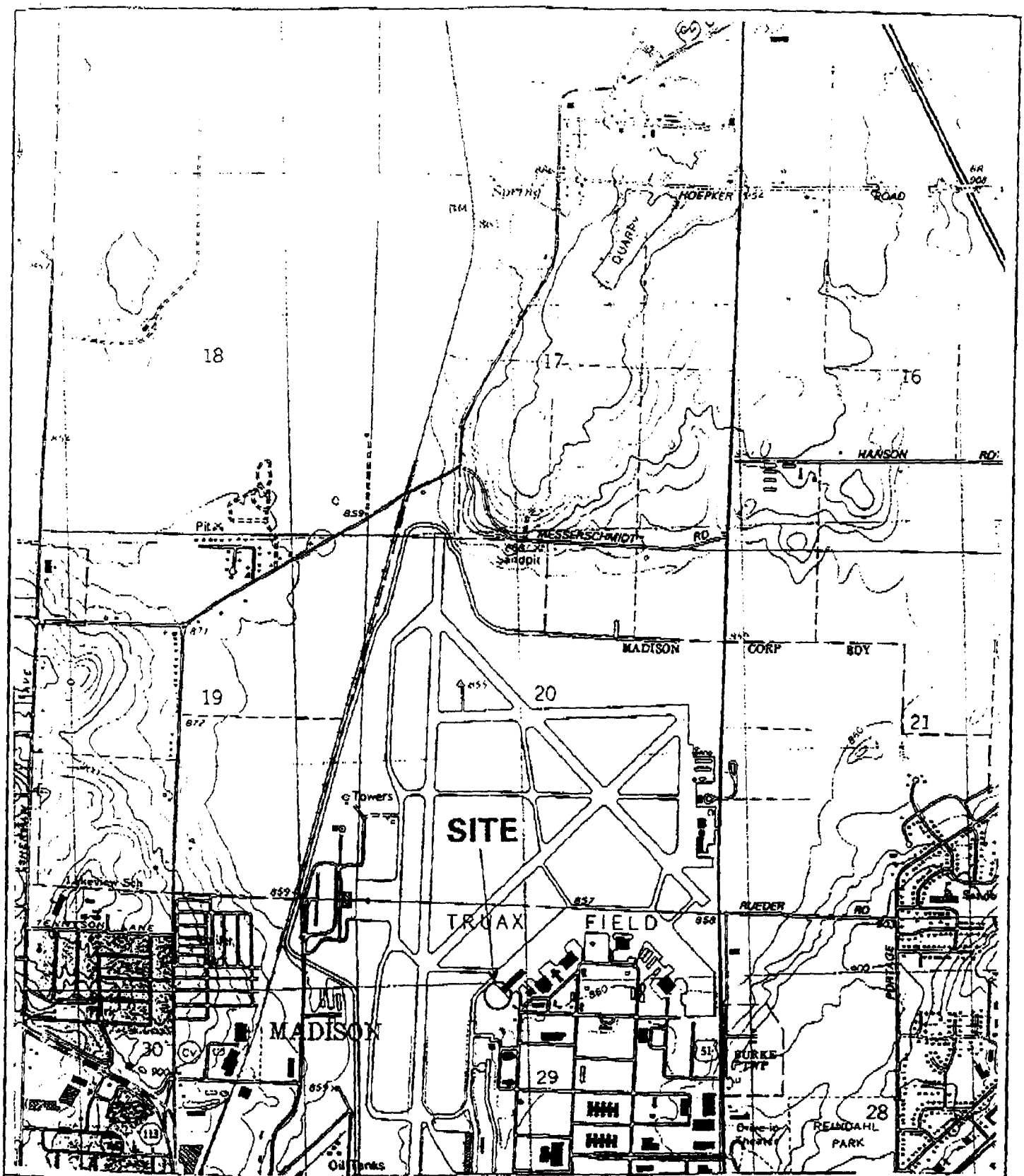
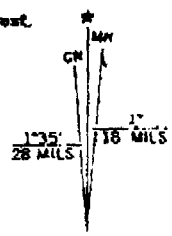


Base map taken from USGS 7.5 minute quadrangle DeForest, Wisconsin (1983).

QUADRANGLE LOCATION



WISCONSIN AIR NATIONAL GUARD
TRUAX FIELD - MADISON, WISCONSIN
SOIL REMEDIATION (SOUTH OF BUILDING 412)

FIGURE 1
SITE LOCATION

PROJECT 1013-001

MARCH 1994

NINE SPRINGS
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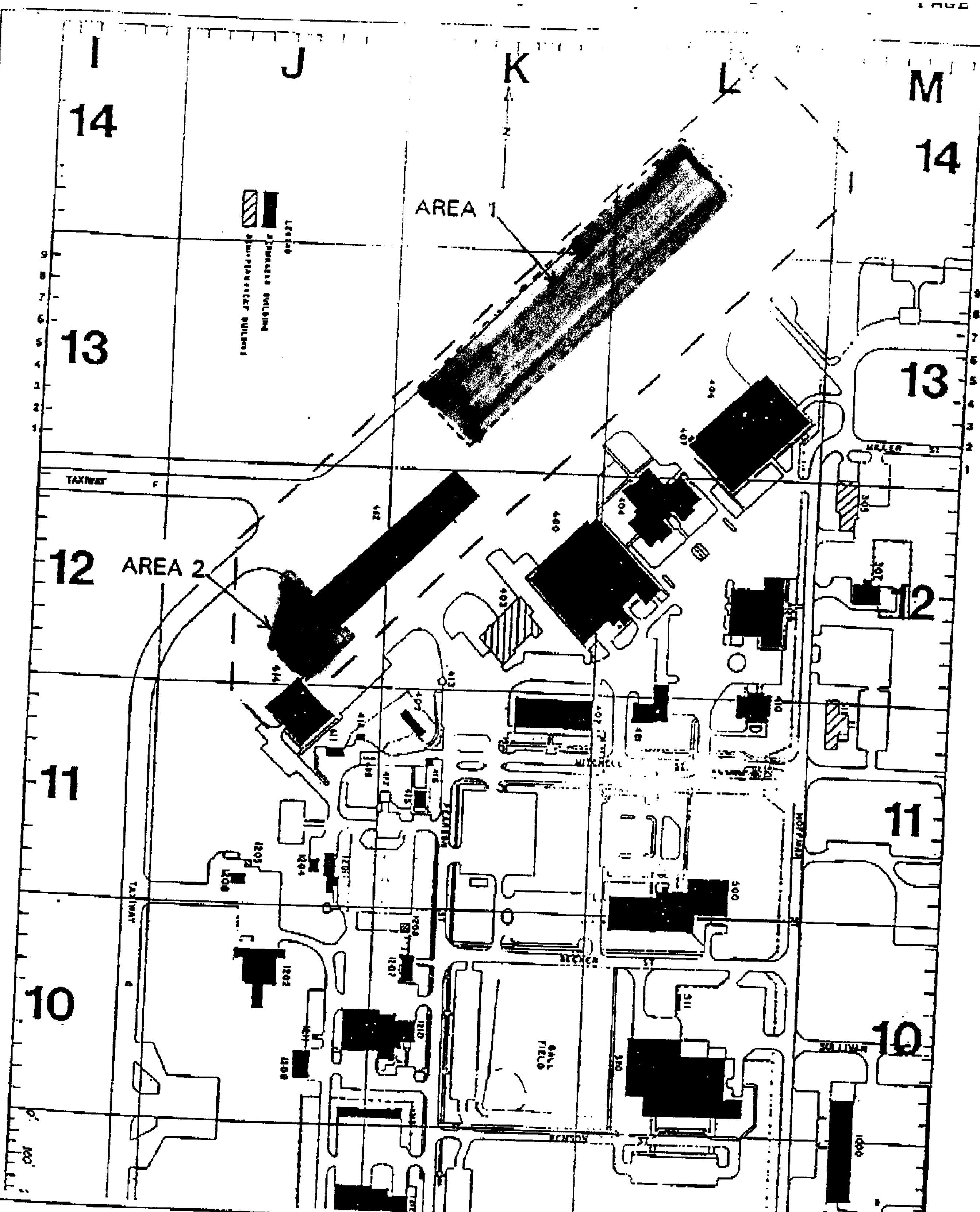

Base map taken from WANG Grid Map (July 24, 1985)

Note: Soil remediation site is located in the SE¼ of grid J12.

— — Outline of proposed construction (geotechnical boring investigation area).

- - - - Soil Contamination areas of concern as determined by Dames & Moore (Area 1 and Area 2).

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WISCONSIN AIR NATIONAL GUARD
TRUAX FIELD - MADISON, WISCONSIN
SOIL REMEDIATION
(SOUTHWEST OF BUILDING 412)

FIGURE 2
DETAILED SITE LOCATION MAP

PROJECT 1013.001

MAR ... 1995

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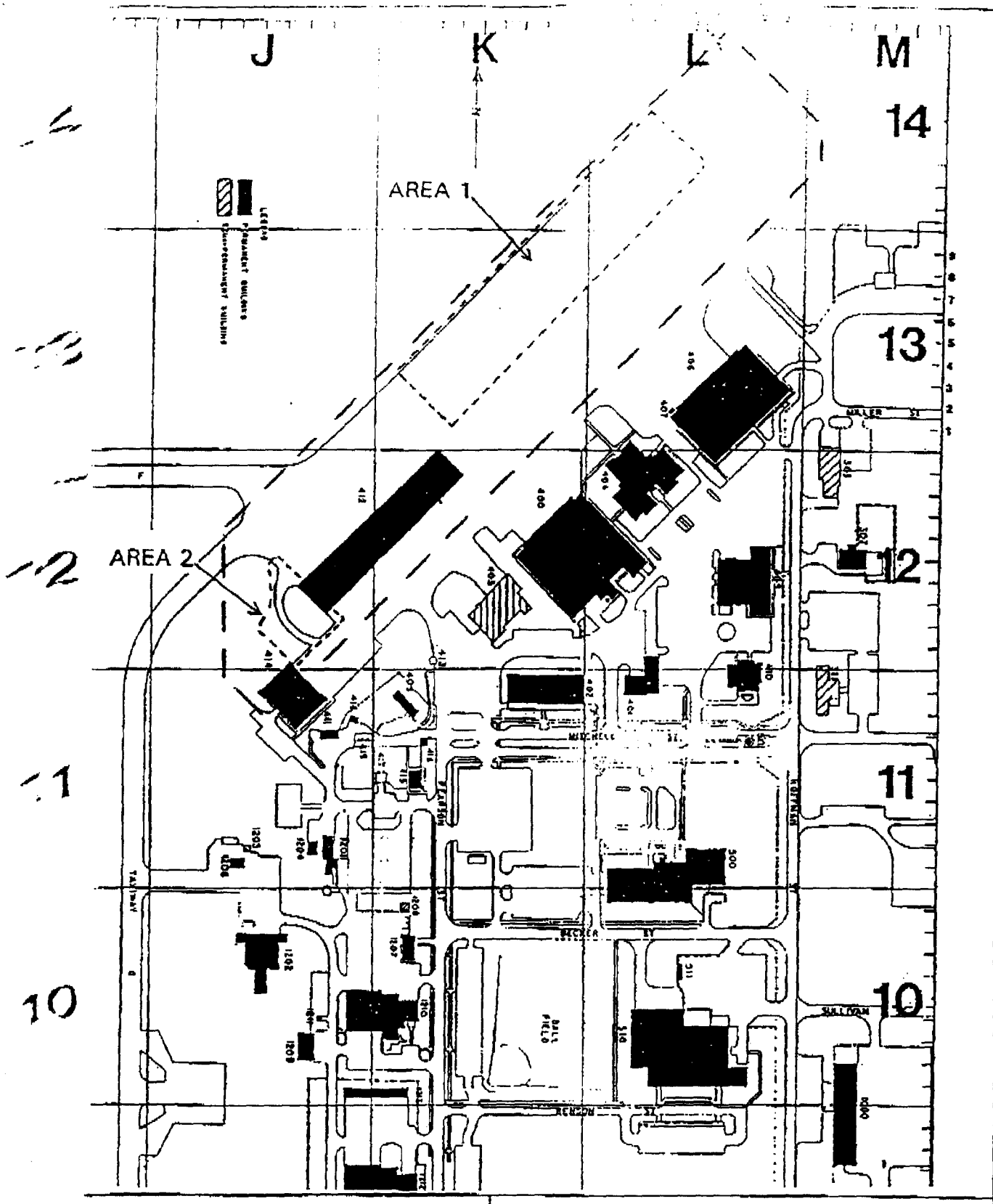

...from WANG Grid Map (July 24, 1985)

...vestigation site is located in the SE¼ of grid J12.

...mixture of proposed construction (geotechnical boring investigation area).

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WISCONSIN AIR NATIONAL GUARD
TRUAX FIELD - MADISON, WISCONSIN
SOIL REMEDIATION
(SOUTHWEST OF BUILDING 412)

FIGURE 2
DETAILED SITE LOCATION MAP

PROJECT 1013.001

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NINE SPRINGS
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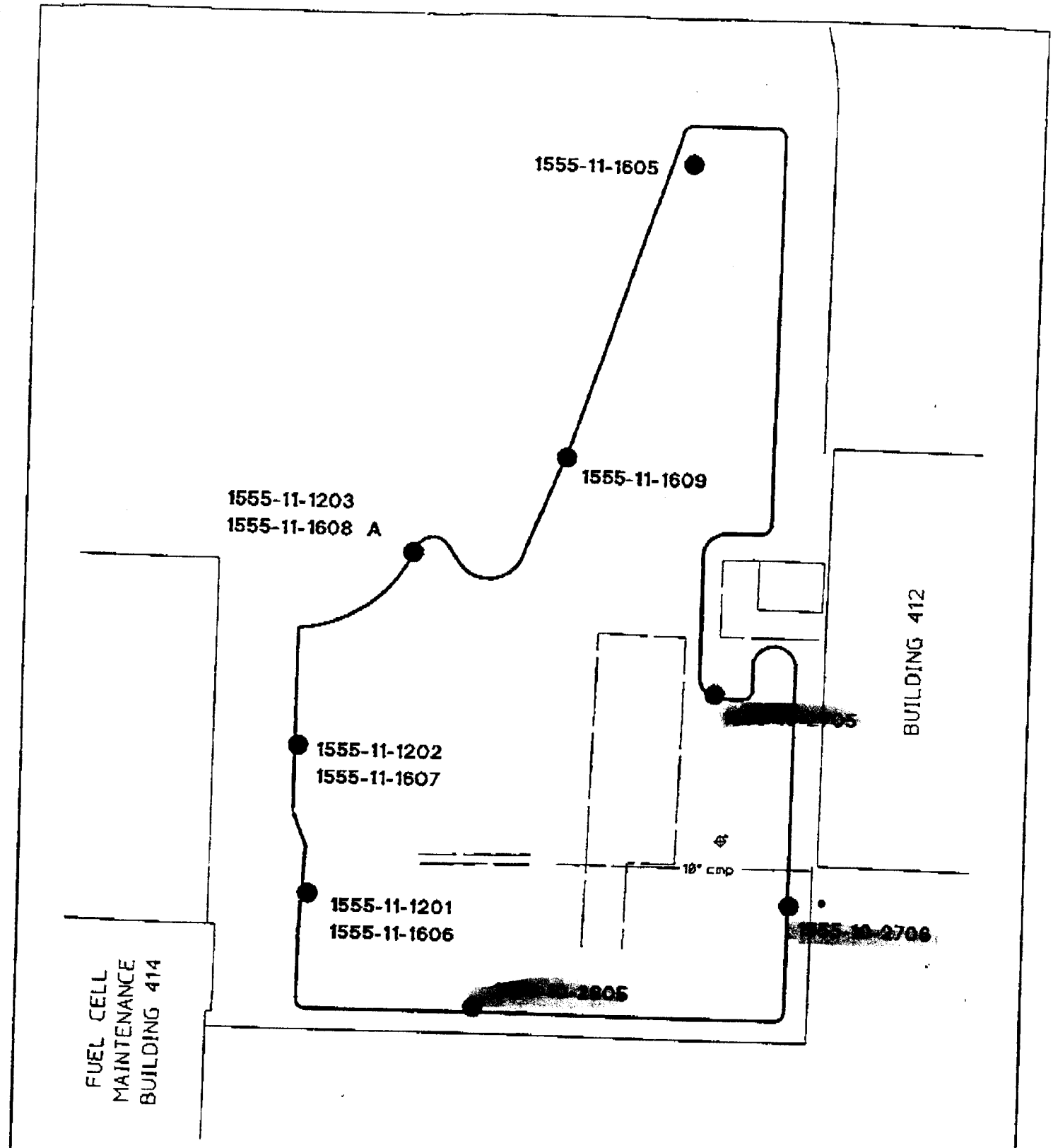

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TRUAX FIELD - MADISON, WISCONSIN
SOIL REMEDIATION
(SOUTHWEST OF BUILDING 412)

FIGURE 3
SITE LAYOUT PLAN

PROJECT 1013-001

MARCH 1994

NINE SPRINGS
ENVIRONMENTAL CONSULTANTS, Inc.

Table 1
Excavated Contaminated Soil Sample Results (Prior to Treatment)
Mead and Hunt, Truax Field-WANG
Madison, Wisconsin

Analytical Parameter	Dirty Pile 1555-10-2801	Pro Dirty 1555-10-2904	PAL (µg/l)
DRO (mg/kg)	33.7	2540	-
GRO (mg/kg)	471	926	-
cadmium (mg/kg)	<0.50	0.58	1
lead (mg/kg)	5.2	1.51	5
VOC (µg/kg)			
Benzene	584	<19	0.067
n-Butylbenzene	--	4381	-
sec-Butylbenzene	--	1108	-
tert-Butylbenzene	--	326	-
ethylbenzene	4020	640	272
Isopropylbenzene	--	582	-
p-Isopropyltoluene	--	536	-
naphthalene	<1206	4612	8
n-Propylbenzene	--	49.1	-
Toluene	654	35.4	68.6
1,2,4-Trimethylbenzene	17,100	3478	-
1,3,5-Trimethylbenzene	7,910	1655	-
xylene	19,940	2602	124
PAH (µg/l)			
Benzo(a)anthracene	30.1	--	-
Benzo(a)pyrene	32.8	--	0.0003
Benzo(k)fluoranthene	13.8	--	-
Dibenzo(a,h)anthracene	41.1	--	-
Fluorene	212	--	-
1-Methylnaphthalene	2278	--	-
2-Methylnaphthalene	1299	--	-

Abbreviations:

- No PAL is currently given for this contaminant
-- Not analyzed as per Sen Tech
µg/kg = parts per billion
µg/l = parts per billion
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
PAH = Polynuclear Aromatic Hydrocarbons
PAL = Preventive Action Limit

Table 2
Excavated Clean (100 yd³ Pile Composite) Soil Sample Results
Mead and Hunt, Truax Field-WANG
Madison, Wisconsin

Analytical Parameter	Composite 1 Clean	Composite 2 Clean	Composite 3 Clean	Composite 4 Clean	Clean Pile 1555 10-2802	Clean Pile 1555 10-2903	Clean Pile 1555-11-1007	Clean Pile 1555-11-1008	Clean Pile 1555-11-1009	Clean Pile 1555-11-0601	PAL (µg/l)
DRO (mg/kg)	53.9	21.1	<10	<10	25.2	<10	<10	20.6	<10	39	-
GRO (mg/kg)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
cadmium (mg/kg)	--	--	--	--	<0.50	0.71	--	--	--	--	1
lead (mg/kg)	--	--	--	--	5.4	4.13	--	--	--	--	5
VOC (µg/kg) Naphthalene	--	--	--	--	--	20.4	--	--	--	--	8
Xylene	--	--	--	--	--	<5	--	--	--	--	124

Abbreviations:

- = No PAL is currently given for this contaminant
-- = Not analyzed as per Sen Tech
µg/kg = parts per billion
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
VOC = Volatile Organic Compounds

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Table 3
Treated (300 yd³ Pile Composite) Soil Sample Results
Mead & Hunt, Truax Field-WANG
Madison, Wisconsin

Sample No.	1555-10-3000	1555-10-3001	1550-10-3001	1550-10-3003	1555-10-3031	09-01	1555-11-1101	1555-11-1601	1555-11-1602	1555-11-1603	1555-11-1604	1555-11-3024	1555-11-3029	1555-11-3001	PAL (µg/l)
DRO (mg/kg)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
GRO (mg/kg)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--	--	-
Cadmium (mg/kg)	0.92	1.07	0.79	0.48	<.50	.91	0.68	<.5	<.5	<.5	<.5	0.62	<.5	<.5	1
Lead (mg/kg)	5.87	17.4	5.93	93.2	4.0	17	6.9	3.0	3.0	6.4	4.2	5.2	8.6	4.4	5
VOC (µg/kg) Benzene	7.9	17.2	<5.6	10.3	<5.3	7.9	<55	<54.2	<53.8	<54.6	<55.6	<5.4	9.2	<5.6	0.067
n-Butylbenzene	21.8	<5.4	14.2	<5.4	<5.3	9.3	--	--	--	--	--	12.2	<5.4	<5.6	-
2-Chlorotoluene	9.1	6.1	<5.6	<5.4	<5.3	<5.4	--	--	--	--	--	<5.4	<5.4	<5.6	-
p-Isopropyltoluene	18.5	<5.4	10.9	<5.4	<5.3	<5.4	--	--	--	--	--	<5.4	<5.4	<5.6	-
1,2,4-Trimethylbenzene	22.3	12.8	11.4	<5.4	<5.3	<5.4	<55	<54.2	<53.8	<54.6	<55.6	<5.4	<59.5	<5.6	-
1,3,5-Trimethylbenzene	22.3	12.8	11.4	<5.4	<5.3	<5.4	<55	<54.2	<53.8	<54.6	<55.6	<5.4	<59.5	<5.6	-
tert-Butylbenzene	<5.4	<5.4	7.5	<5.4	<5.3	<5.4	--	--	--	--	--	<5.4	7.6	<5.6	-
ethylbenzene	8.0	6.3	<5.6	16.5	<5.3	<5.4	<55	<54.2	<53.8	<54.6	<55.6	<5.4	<59.5	<5.6	272
methylene chloride	<5.3	<5.4	<5.6	7.8	<5.3	<5.4	--	--	--	--	--	59.6	564	237	15
naphthalene	68.2	10.5	109	25.0	<5.3	<5.4	<1206	<1206	<1206	<1206	<1206	23.4	26.2	<5.6	8
total xylene	52.8	31.8	44.8	39.9	<5.3	<5.4	<275	<260	<270	<273	<278	16	16.8	<16.8	124
toluene	35.4	34.5	8.9	40.6	<5.3	<5.4	<110	<108	<108	<109	<111	13.7	190	184	68.6
1,1,2 Trichloroethane	<5.4	<5.4	<5.6	<5.4	<5.3	<5.4	--	--	--	--	--	12.0	<5.4	<5.6	0.06

Abbreviations:
- = No PAL is currently given for this contaminant
-- = Not analyzed as per Sen Tech
µg/kg = parts per billion
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
PAL = Preventive Action Limit
VOC = Volatile Organic Compounds

Table 4
Excavation Sidewall Soil Sample Results
Mead & Hunt, Truax Field-WANG
Madison, Wisconsin

Analytical Parameter	[redacted]	[redacted]	[redacted]	1555-11-1201A	1555-11-1202A	1555-11-1203A	1555-11-1605B	1555-11-1609C	1555-11-1606B	1555-11-1607B	1555-11-1608B	ES (µg/l)
GRO (mg/kg)	3,630	1,090	460	<10	<10	<10	<10	<10	<10	<10	<10	-
DRO mg/kg)	8,950	976	298	<10	<10	<10	<10	40.9	<10	<10	<10	-
Pb (mg/kg)	--	--	--	--	--	--	10	23	7.0	6.8	6.6	50
Cd (mg/kg)	--	--	--	--	--	--	3.8	<0.50	<0.50	<0.50	<0.50	10
PVOC (µg/kg) MTBE	--	--	--	--	--	--	<60	<50	<60	<55	<60	60
Benzene	--	--	--	--	--	--	<60	<50	162	196	<60	5
Toluene	--	--	--	--	--	--	<120	<100	<120	<110	<120	343
Ethylbenzene	--	--	--	--	--	--	<60	<50	<60	<55	<60	1,360
Xylene	--	--	--	--	--	--	<120	<100	357.5	<110	<120	620
1,2,4 trimethylbenzene	--	--	--	--	--	--	<60	<50	225	<55	<60	-
1,3,5 trimethylbenzene	--	--	--	--	--	--	<60	<50	77.7	<55	<60	-

Abbreviations:
- = No ES is currently given for this contaminant in Wisc. Admin. Code NR 140
-- = Not analyzed as per Sen Tech
Cd = Cadmium
DRO = Diesel Range Organics
ES = Enforcement Standard
GRO = Gasoline Range Organics
Pb = Lead

Table 5
Trip & Field Blanks (Quality Assurance)
Mead & Hunt, Truax Field-WANG
Madison, Wisconsin

Parameters	10/29/93 15:00	11/06/93 11:30	11/03/93
VOC (μg/l)	<5.0*	--	<5.0*
GRO (mg/kg)	--	<10.0	--

* = <5.0 indicates that all VOC parameters tested were <5.0 μg/liter.
GRO = Gasoline Range Organics (methanol field blank)
VOC = Volatile Organic Compounds (trip blank)

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