MEMORANDUM

TO: Prospective Purchasers of Old Trolley Barn

FROM: Rebecca Bergeron
Rye Town Administrator

DATE: April 14, 2021

RE: Remediation of Contaminated Soil

The second paragraph of the July 2013 Old Trolley Barn Building Study (which is part of the RFP Package) references the 1997 investigation of soil contamination at the trolley barn site. This memorandum and its attachments provide more information about the 1997 investigation.

In 1997 the building was used as the Rye Police Station. Previously it had been used for many years as the Town Highway Garage. Two underground storage tanks (UST's) were removed in 1981 or 1982.

On or about February 3, 1997 members of the Police Department smelled gasoline vapors in the building. The Town retained Total Waste Management to perform several test pits, in an effort, to locate any abandoned UST's. None were found, but a relatively high concentration of volatile organic compounds (VOC's) was found directly beneath the northwestern corner of the building. This indicated a surface spill of gasoline.

The Town retained Exeter Environmental Associates, Inc. to perform a soil vapor survey and indoor air monitoring. On February 13, 1997, the Town excavated 8.33 tons of contaminated soil and hauled it to a disposal facility in Loudon, NH. The excavation was backfilled with clean sand.

Following the soil removal confirmation soil samples were taken by Exeter Environmental and submitted to Eastern Analytical, Inc. of Concord, NH for analysis. A groundwater sample was also submitted to Eastern Analytical. No VOC's were detected in the soil samples or the water sample.

These investigations and analyses determined that the gasoline release was limited to the immediate vicinity of the building and unlikely to have affected adjacent properties.

According to Eastern Analytical the laboratory results indicated that the site remediation effort was successful in removing gasoline contaminated soil and shallow water had not been impacted by the release.

After reviewing an Exeter Environmental Associates report dated February 25, 1997, NH DES notified the town that:

"Based on this information, all sources of groundwater contamination at the subject site discovered during the site investigation have been eliminated and ambient groundwater quality standards are met throughout the site. Therefore, DES will not require additional investigation, remedial measures, or groundwater monitoring at this time." June 11, 1997 letter from William R. Evans, NH DES Oil Compliance, and Initial Response Section.

Copies of the February 25, 1997 Exeter Environmental Associates Report and the June 11, 1997 DES letter are attached to this memorandum. The 1997 test reports and other records from the 1997 investigation may be inspected and copied at the office of the Rye Select Board.

Very truly yours,

Rebecca Bergeron
Rye Town Administrator

Attached:
February 25, 1997 Report
June 11, 1997 DES Letter

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EXETER
ENVIRONMENTAL
ASSOCIATES, INC.

P.O. Box 451
Exeter, NH 03833-0451
Tel: (603) 778-3988
Fax: (603) 778-0104

February 25, 1997

Oil Remediation & Compliance Bureau
Waste Management Division
NH Department of Environmental Services
6 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Attention: Mr. Bill Evans

RECEIVED
FEB 27 1997
DEPT. OF
ENVIRONMENTAL SERVICES

RE: Initial Site Characterization
Rye Police Department Building
(DES # 970207)
37 Central Road, Rye, NH

Dear Mr. Evans:

On behalf of the Town of Rye, Exeter Environmental Associates, Inc. has prepared this Initial Site Characterization Report documenting the recent release and subsequent abatement of gasoline at the above-referenced property.

Site Description. The Rye Police Department building consists of a one-story building, *circa* 1890, located at 37 Central Road in Rye, New Hampshire. The location of the subject property is shown on the USGS map of Figure 1. The site layout is shown on Figures 2A and 2B.

The subject building and neighborhood are serviced by municipal water and private septic systems. The building is heated with fuel oil, which is stored in a 275-gallon above-ground tank located inside the building. The building is supported with a stone and brick footing, with no basement. The floor consists of a poured concrete slab. The site topography is level and at road grade. The direction of ground water flow has not been determined as part of this investigation.

Spill History and Background. The Rye Police Department has occupied the 37 Central Road building for the past three years. The building had historically been used by the Town Highway Garage, and was renovated prior to the Police occupying the building. The Town Highway Garage utilized two on-site gasoline underground storage tanks, as shown on Figure 2A. The tanks were removed in 1981 or 1982. Mr. William Jenness, the Rye Building Inspector, has indicated to us that to the best of his knowledge, there was no evidence of a gasoline release at the time of the tank removals.

On or about February 3, 1997, members of the Rye Police Department smelled gasoline vapors in the building. On February 4, 1997, an evaluation by Mr. Bill Evans of the NH Department of Environmental Services revealed that the vapors were entering the building through the partition in the bathroom wall, which had a hole measuring several inches across. It was suspected that the area beneath the partition was open to the subgrade, and was not sealed by the concrete slab floor.

Also on February 4th, Total Waste Management (Newington, NH) performed several tests pits along the north side of the building, in an effort to locate an abandoned underground tank. No tanks were found. However, field screening of soil samples with a photoionization detector (PID) revealed relatively high concentrations of volatile organic compounds (VOCs) directly beneath the northwestern corner of the building. The PID readings decreased with depth, indicating a surface spill of gasoline.

Initial Field Investigation. Exeter Environmental Associates, Inc. was engaged on February 6th to perform a soil vapor survey and indoor air monitoring. Teflon soil probes were installed at depths of 5.0 feet below grade at seven locations surrounding the building. The probe borings were installed with a 1"-O.D. steel bar and an electric hammer drill. The 1/4"-diameter Teflon probes were backfilled with silica sand and sealed from the ground surface using hydrated bentonite. The probes were evacuated with a portable pump, then screened for the presence of VOCs using a Photovac PID calibrated to read as benzene. The soil vapor results are presented on Figure 2A. The results confirmed that the highest VOC concentrations were directly beneath the northwestern building corner, as initially determined by Total Waste Management.

The survey did not find elevated VOC concentrations in the reported vicinity of the former underground tanks. To confirm the soil conditions at this location, one soil sample was collected with the steel drive probe that was equipped with a zero-contamination sampling tube. Soil sample SG-1 was collected at a depth of 6 to 7 feet below ground surface (bgs). The water table was encountered at 6 feet bgs. The sample was submitted to Eastern Analytical (EAI, Concord) for the analysis of VOCs per EPA Method 8020. No VOCs were detected in this soil sample, indicating that the former USTs are unlikely to be the source of the gasoline vapors.

The indoor air was screened for VOCs on February 7th using the PID. Readings ranging from 1.9 parts per million (ppm) to 3.2 ppm were measured. The hole in the bathroom partition was confirmed to be the source of the gasoline vapors entering the building. Upon our recommendation, the bathroom door was shut, and the fan was turned on for four continuous days.

Two indoor air samples were collected for laboratory analyses on February 7th, prior to venting the bathroom. The samples were collected in duplicate using Tenax sample collection tubes and a portable pump pre-calibrated to an air flow rate of 1.5 liters per minute. The sample tubes were hand delivered to Eastern Analytical, Inc. (Concord, NH), along with a description of the sampling time period. The results are discussed in the *Potential Receptors* section of this report, and are enclosed in *Appendix I.*

On February 10th, the Rye Police Chief reported to Selectman Ed Hurlihy that the odors in the building had abated. We returned to the Rye Police Building on February 11th to confirm this with our PID. The PID was properly calibrated to read as benzene prior to entering the building. PID readings of 0.0 ppm (background) were measured in all areas of the building, except the bathroom which had remained closed. A PID reading of 0.9 ppm was measured in the bathroom, and a very faint odor of gasoline was noted in the bathroom.

On February 7th, Mr. Evans had indicated to us that his office would be requesting that a Site Investigation be conducted. We discussed the project status with Mr. Evans on February 11th. We recommended that an Initial Site Characterization (ISC) be conducted instead of a Site Investigation, given the suspected surficial nature of the release. Mr. Evans contacted us on February 12th and concurred that an ISC would be appropriate at this stage of the project. Mr. Evans indicated that this initial response work could proceed under verbal authorization.

Soil Excavation and Disposal. Soil excavations were conducted on February 13, 1997 by Rye DPW personnel, using a backhoe and hand shovels. The clean soil was differentiated from the contaminated material by using a Photovac PID and the jar headspace method. In general, soils with PID readings below 20 ppm were considered clean, and were not excavated. The final excavation area is shown on Figure 2B, and in Photo's #3 and #4.

The contaminated soil was properly stockpiled on-site, and underlain and covered by 6-mil polyethylene sheeting (Photo #6). Samples of the stockpiled soil were not collected for waste characterization analyses, as Env-Ws 412 (revision November 1996) does not require this characterization for soil stockpiles less than 50 tons. A copy of the Virgin Petroleum Certification form is included in *Appendix II.*

A total of 8.33 tons of contaminated soil was transported directly to the Environmental Soil Management, Inc. (ESMI) facility in Loudon on February 18, 1997. The trucking was performed by the Rye DPW. Copies of the weight slips and the bill-of-lading are included in *Appendix II.*

The soil in the excavation area was observed to consist of a fine to coarse sand. The excavation ranged in depth from two to five feet below the initial grade, and ground water was not encountered. During the excavation, gasoline-saturated soils were observed at the ground surface along the northwestern corner of the building foundation. This observation would further support that the release was the result of gasoline spillage at the ground surface, with subsequent gasoline vapor migration into the building through the stone foundation.

The excavation was backfilled with clean sand on February 13, 1997. Prior to the backfill, a 4" diameter solid PVC pipe was installed through the stone footing and into the space beneath the concrete slab by DPW personnel (Photo #5). This pipe was fitted with a vacuum blower on February 21, 1997. The discharge rate is estimated to be 150 cubic feet per minute (cfm), based upon the manufacturers specifications. An effluent concentration of 10± ppm was measured with a PID approximately three hours after start-up. The effluent concentration was measured to be 0.0 ppm on February 24, 1997, indicating that the vacuum blower system was successful in removing the gasoline vapors from beneath the building. The ambient air inside the entire building was also measured to be 0.0 ppm on February 24th.

Confirmatory Soil Sampling and Analysis. Confirmatory soil samples were collected by Exeter Environmental Associates, Inc. following the soil removal effort on February 13, 1997. Soil sample SS-2 was collected as a composite from four discrete locations along the bottom and sidewalls from the portion of the excavation located off the northern side of the building. Soil sample SS-3 was collected as a composite from four discrete locations along the bottom and sidewalls from the portion of the excavation located off the western side of the building. The objective of these soil samples was to determine if the soil excavations were sufficient in removing the gasoline contamination to concentrations below the NH DES Soil Cleanup Standards. The sampling depths ranged from two to five feet below ground surface. The composite soil samples were collected with a stainless steel spatula, composited in a stainless steel bowl, and placed in appropriate jars.

The samples were submitted to the laboratory (Eastern Analytical, Concord, NH) for the following analyses: VOCs per EPA Method 8260 and Total Petroleum Hydrocarbons (TPH) per EPA Method 8015. A summary of the compounds detected in the soil samples is presented in Table 1, on the following page. None of the compounds were detected at concentrations exceeding the NH DES Soil Cleanup Standards, as presented in Env-Ws 412.13 (November 1996).

Table 1. Summary of Compounds Detected in Confirmatory Soil Samples. Units are µg/kg, equivalent to parts per billion (ppb).

Compound	SS-2	SS-3	Standard
methyl t-butyl ether	400	<200	3,000
alkylbenzenes	40	20	61,000
xylenes	<10	30	810,000
vol. pet. hydrocarbons	2,000	400	10,000,000

Water Sampling and Analysis. One ground water sampling piezometer was installed adjacent to the soil excavation area on February 13, 1997, following the soil removal effort. The piezometer boring was performed with a steel drive bar and electric hammer drill, advanced to a depth of 12 feet below ground surface (bgs). Ground water was encountered at six feet bgs, as determined with an electronic water level indicator. A 1/2" I.D. PVC piezometer was subsequently installed in the boring, by hammering the PVC pipe into the boring. The piezometer was constructed with a machine-slotted screen, and was screened from five to nine feet bgs.

One water sample was collected from the piezometer on February 13, 1997, using a Waterra mini check valve and dedicated HDPE tubing. After purging five well volumes, the water sample was collected directly into two 40-milliliter glass vials fitted with PTFE septa. The glass vials were pre-preserved with hydrochloric acid, and were checked to insure that no air bubbles were present.

The water sample (PZ-1) was submitted to EAI for analysis of VOCs using EPA Method 8260. The analysis was performed to evaluate the water quality for comparison with the NH DES Ambient Groundwater Quality Standards (AGQS). No VOCs were detected in the water sample.

A copy of the laboratory reports, along with chain-of-custody documentation, is presented in *Appendix I* of this report.

Potential Receptors. For this type of release, potential receptors include: indoor air in the subject building and nearby basements; private or public water supplies; and surface water/wetland areas.

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The indoor air for the subject building is known to have been impacted by this release; the odors inside the building were the first indication that a release had occurred. Potential health impacts from the indoor air were evaluated by Exeter Hospital's Center for Occupational and Environmental Health (COEH). According to the COEH evaluation (*Appendix III*), the exposure to this release was both brief and low, and they have no concerns about health effects from the exposure. No detectable concentrations of VOCs were measured in the subject building with a properly calibrated PID on February 24, 1997.

Nearby basements are considered potential receptors, due to the potential for gasoline vapor migration to these structures. There are two structures with basements abutting the subject property. The Scofield residence is located 120± feet north of the release area. The Burke residence is located 140± feet south of the release area. This investigation has determined that the gasoline release has been limited to the immediate vicinity of the police station building. Given the removal of the affected soils and the absence of ground water contamination, it is our opinion that these abutting properties are unlikely to be impacted by this release.

The subject property and neighborhood are serviced by municipal water. According to Ms. Barbara Hanson of the Rye Water District, there are no public water supply sources located within a 0.50± mile radius of the subject property. Also according to Ms. Hanson, the subject property and all of the abutting properties are connected to the Rye Water District water supply. On the basis of this information, it is our opinion that water supplies are not at risk from this gasoline release.

No wetlands or poorly drained soils were observed on the subject property or on abutting properties during the site visits of this investigation. Given this observation and the absence of ground water contamination, it is our opinion that the surface water/wetland areas are unlikely to be impacted by this release.

Summary and Conclusions. Exeter Environmental Associates, Inc., presents the following summary and conclusions, based upon the information collected to date.

- The Rye Police Department building is located at 37 Central Road in Rye, New Hampshire. The subject building consists of a one-story building, *circa* 1890. The building is supported with a stone and brick footing, with no basement. The floor consists of a poured concrete slab. The subject building and neighborhood are serviced by municipal water.

- On or about February 3, 1997, members of the Rye Police Department smelled gasoline in the building. An initial subsurface investigation by Total Waste Management found relatively high concentrations of gasoline vapors beneath the northwestern corner of the building.

- A soil vapor survey performed by Exeter Environmental Associates, Inc. on February 6th did not detect gasoline contamination in the vicinity of two former gasoline underground storage tanks, and confirmed elevated concentrations of VOCs in the shallow soils at the northwestern corner of the building. During our initial visit, we closed the bathroom door and vented the bathroom with the ceiling fan. After four days, the gasoline odors had abated.

- The results of indoor air monitoring performed prior to venting the bathroom were submitted to Exeter Hospital's Center for Occupational and Environmental Health (COEH) for review. According to the COEH evaluation, the exposure was both brief and low, and they have no concerns about health effects from the exposure. No detectable concentrations of VOCs were measured in the subject building with a PID on February 24, 1997.

- The gasoline-impacted soils were excavated and stockpiled on-site on February 13, 1997 by the Rye DPW. A photoionization detector was used to guide the excavations. The final excavation depth ranged from 2± to 5± feet below the initial grade. The site soils were observed to consist of a fine to coarse sand. A total of 8.33 tons of contaminated soil was transported directly to the ESMI facility in Loudon on February 18, 1997.

- During the excavation, gasoline-saturated soils were observed at the ground surface along the northwestern corner of the building foundation. This observation would support that the release was the result of gasoline spillage at the ground surface, with subsequent gasoline vapor migration into the building through the stone foundation.

- Two composite soil samples were collected from the excavation area after removal of the contaminated soil. The soil samples were submitted for analysis of VOCs per EPA Method 8260 and TPH per EPA Method 8015. No VOCs or TPH were detected in these soil samples at concentrations exceeding the NH DES Cleanup Standards as presented in Env-Ws 412.

- One shallow ground water sample was collected on February 13, 1997 from a piezometer installed adjacent to the soil excavation area. The water sample was submitted for analysis for the presence of VOCs per EPA Method 8260. No VOCs were detected in the water sample.

- A vacuum blower was used to remove the gasoline vapors from beneath the building. The effluent vapor concentration upon startup was measured with a PID to be 10± ppm. A concentration of 0.0 ppm was measured after four days.

- The laboratory results indicate that the site remediation efforts were successful in removing the gasoline-contaminated soil, and that the shallow water has not been impacted by this release. Following the removal of the contaminant source area at this location, it is our opinion that potential receptors are unlikely to be impacted.

- Based upon the laboratory results, it is our opinion that the NH DES is unlikely to require additional remediation. No further investigation or remedial activities appear to be warranted at present. From discussions with representatives of the Town of Rye, it is our understanding that the vacuum blower will be disconnected in the near future.

Please call if you have any questions or comments.

Sincerely yours,

Steven B. Shope, P.HG.
President
Exeter Environmental Associates, Inc.

SBS/appendices

cc: Ms. Janet Thompson, Town of Rye, 10 Central Road, Rye, NH 03870-2522

State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES
6 Hazen Drive, P.O. Box 95, Concord, NH 03302-0095
(603) 271-3644 FAX (603) 271-2181

Rye
9/026

June 11, 1997

Mrs. Janet Thompson
Town of Rye
10 Central Road
Rye, New Hampshire

SUBJECT: RYE, RYE POLICE DEPARTMENT, 37 CENTRAL ROAD (DES# 970207)

Dear Mrs. Thompson:

The New Hampshire Department of Environmental Services (DES) has reviewed all of the information submitted to date concerning the soil and groundwater contamination at the above referenced property and has concluded that:

1. All previous requirements have been adequately addressed.

2. Based on this information, all sources of groundwater contamination at the subject site discovered during the site investigation have been eliminated and ambient groundwater quality standards are met throughout the site. Therefore, DES will not require additional investigation, remedial measures, or groundwater monitoring at this time.

The owner(s) of this property must continue to meet the requirements of the N.H. Administrative Rules Env-Ws 410, "Groundwater Protection Rules," that is, groundwater at the site must continue to meet ambient groundwater quality standards.

The DES reserves the right, under N.H. Administrative Rules Env-Ws 410, "Groundwater Protection Rules," and N.H. Administrative Rules Env-Ws 412, "Rules for Reporting and Remediation of Oil Discharges," to require additional investigations, remedial measures, or groundwater monitoring if further information indicating the need for such work is received.

If you have questions, please contact me at the Waste Management Division or call me at (603) 271-3644.

Sincerely,

William R. Evans
Oil Compliance and Initial Response Section

WRE/gls/f:\gwusers\thompson.wpd
cc: File
Steven Shope, P. HG.
Chief Brad Loomis