

FINAL CLEANUP ACTION REPORT

at the

STOREY GAS STATION FACILITY

1310 East First Street

Cle Elum, Washington

for

SUZANNE STOREY, MARILYN STOREY,

and

JOANNE STOREY MANKUS

Cle Elum, Washington 98922

prepared by



GALLOWAY ENVIRONMENTAL, INC.

Sammamish, Washington

(425) 688-8852

January 2003



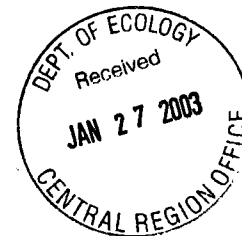
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January 24, 2003

Storey Gas Station Facility
Attn. Ms. Suzanne Storey
1310 East First Street
Cle Elum, Washington 98922



SUBJECT: Final Cleanup Action Report – Storey Service Station, 1310 East First Street, Cle Elum, Washington

Dear Ms. Storey:

This Final Cleanup Action Report presents a summary of Galloway Environmental, Inc.'s (GEI's) findings from Bioremediation Pad Soil Sample Results at the above-referenced site. The scope of work for this phase of GEI's Cleanup Action Plan (approved by the WDOE June 19, 2000) included collecting and analyzing soil samples from the bioremediation pad.

BACKGROUND

The Washington Department of Ecology (WDOE or Ecology) issued an Agreed Order to the Storey Gas Station (the "Site") on or about October 24, 1997. Ecology's Findings of Fact concluded that water and soil samples confirmed the presence of "hazardous substances" as defined by the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC (MTCA) on the subject property (*Phase I and Phase II Environmental Site Assessment, Former and Current Service Stations and Bulk Storage Facilities, Cle Elum, Washington, WDOE Central Region Office, December 1996*).

Attached to the Agreed Order was a Statement of Work for the Remedial Design/Feasibility Study (RI/FS) at the Site. The scope of work of the RI/FS was based on MTCA. The objective of the RI/FS was to develop data sufficient to characterize the contamination and identify remedial options for the environmental cleanup of the Site in accordance with WAC 173-340.

GEI completed an RI/FS for the subject property in March 2000. The RI/FS confirmed that petroleum compounds remained belowground at the Site above the WDOE's acceptable Model Toxics Control Act (MTCA) in soil. Based on the WDOE's acceptance of the RI/FS (May 2000), GEI developed a Cleanup Action Plan (CAP) for the site in May 2000. The Plan was approved by the WDOE in June 2000. The remedial action activities outlined in the CAP included the following scope of work:

- 1) On-site bioremediation of approximately 600 cubic yards of petroleum-impacted soil in a secure, lined treatment cell;
- 2) This Final Cleanup Action Report will be submitted to the Washington Department of Ecology ("WDOE" or "Ecology") within 30 days following the successful on-site remediation of petroleum-impacted soils currently stockpiled on-site.

BIOREMEDIATION SOIL SAMPLE RESULTS

The petroleum-impacted soils contained in the on-site bioremediation pad have been sampled and analyzed four times since the pad was constructed in July 2000 (*see Attachment A - Site Plan Map*). Laboratory results of the sampling confirmed that gasoline-range petroleum hydrocarbons were not detected in any of the soil samples, and heavy oil- and diesel-range hydrocarbons are below the currently acceptable MTCA Method A levels in the soil. These results are summarized as follows:

September 27, 2000 Soil Sample Results - GEI collected six discreet soil samples from representative grid cells evenly distributed throughout the pad (*see Attachment A - Figure 1 Sample Location Map, attached*). Diesel-range hydrocarbons averaged 453.33 mg/kg and Heavy Oil-range hydrocarbons averaged 208.33 mg/kg.

Based on these results, GEI added petroleum degrading microorganisms and nutrients into the soil to enhance the remediation of the soil. The soil was mixed approximately every week to assist in distributing the microbes and nutrients throughout the soil.

November 29, 2000 Soil Sample Results - GEI collected six discreet soil samples from representative grid cells evenly distributed throughout the pad (*see Attachment A - Figure 2 Sample Location Map, attached*). Diesel-range hydrocarbons averaged 356.67 mg/kg and Heavy Oil-range hydrocarbons averaged 218.33 mg/kg.

Based on these results, GEI has discontinued tilling the soil until the soil thaws early next spring and the microbial degradation of the petroleum becomes active.

October 17, 2001 Soil Sample Results - GEI collected six discreet soil samples from representative grid cells evenly distributed throughout the pad. Diesel-range hydrocarbons averaged 268.33 mg/kg and Heavy Oil-range hydrocarbons averaged 140.00 mg/kg.

December 18, 2002 Soil Sample Results - GEI collected six discreet soil samples from representative grid cells evenly distributed throughout the pad (*see Attachment A - Figure 3 Sample Location Map*). Laboratory results confirmed that the Diesel-range and Heavy Oil-range hydrocarbons are less than the currently allowable MTCA cleanup level of 2000 mg/kg (*see Table 1 and Appendix A -Laboratory Data Sheets*).

| Table 1 - Bioremediation Pad Sample Results Summary | | | | |
|--|----------------------|---|--|---|
| Date | Sample Number | Gasoline (mg/Kg) Limit 100 mg/kg | Diesel (mg/Kg) Limit 2000 mg/kg | Heavy Oil (mg/Kg) Limit 2000 mg/kg |
| 9/27/00 | SNW 9/27/00 | ND | 540 | 210 |
| " | SNE 9/27/00 | ND | 320 | 180 |
| " | SCN 9/27/00 | ND | 510 | 220 |
| " | SCS 9/27/00 | ND | 580 | 240 |
| " | SSW 9/27/00 | ND | 370 | 200 |
| " | SSE 9/27/00 | ND | 400 | 200 |
| 11/29/00 | SGS1129 1 @ CS | Not Tested | 470 | 200 |
| " | SGS1129 2 @ CS | Not Tested | 300 | 180 |
| " | SGS1129 3 @ CS | Not Tested | 220 | 140 |
| " | SGS1129 4 @ CS | Not Tested | 410 | 300 |
| " | SGS1129 5 @ CS | Not Tested | 300 | 160 |
| " | SGS1129 6 @ CS | Not Tested | 440 | 330 |
| 10/17/01 | STOREY BP-1 | Not Tested | 220 | 130 |
| " | STOREY BP-2 | Not Tested | 240 | 130 |
| " | STOREY BP-3 | Not Tested | 220 | 120 |
| " | STOREY BP-4 | Not Tested | 260 | 120 |
| " | STOREY BP-5 | Not Tested | 390 | 200 |
| " | STOREY BP-6 | Not Tested | 280 | 140 |
| 12/18/02 | STOREY SP-1B | Not Tested | 96 | 100 |
| " | STOREY SP-2B | Not Tested | 92 | 120 |
| " | STOREY SP-3B | Not Tested | 63 | 90 |
| " | STOREY SP-4B | Not Tested | 54 | 69 |
| " | STOREY SP-5B | Not Tested | 96 | 130 |
| " | STOREY SP-6B | Not Tested | 94 | 130 |

CONCLUSIONS AND RECOMMENDATIONS

Based on laboratory sample results, this site does not appear to pose any threat to human health and/or the environment.

Storey Gas Station has complied fully with the conditions of the October 24, 1997 Agreed Order with the WDOE, pending Storey's filing of the Restrictive Covenant/Deed Restriction for the property.

GEI recommends that the WDOE issue a "No Further Action" letter to the owners of the Storey Gas Station regarding this cleanup action.

Should you have any questions regarding this report or if you would like to discuss our findings, please call me at (425) 688-8852.

Respectfully Submitted,

GALLOWAY ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read "Gary Galloway", with a stylized flourish at the end.

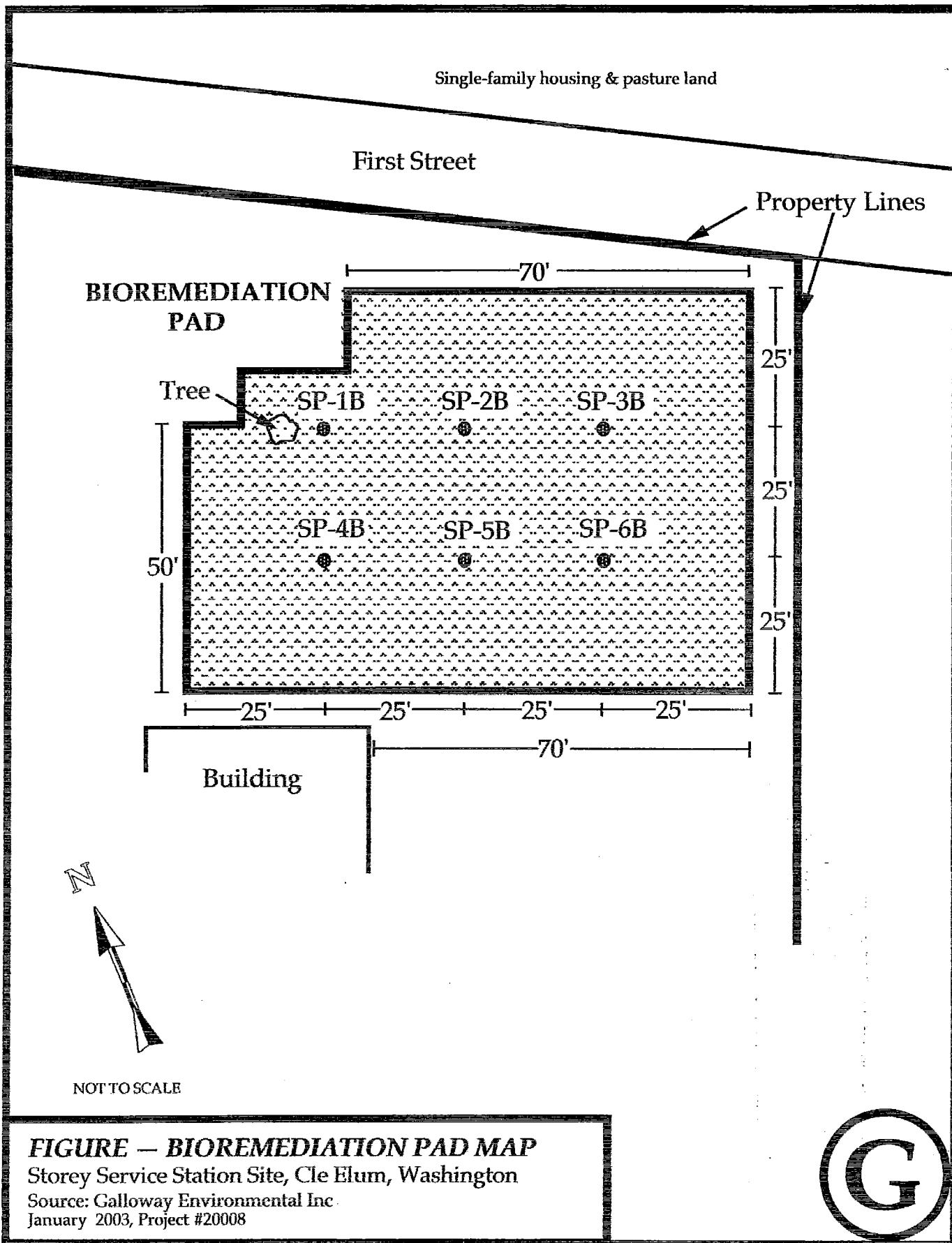
Gary L. Galloway, RG, CHMM, REA

President

cc: Tom Myler - Marine Vacuum Services
Chung Ki Yee, WDOE Central Division

ATTACHMENTS A

Bioremediation Pad Sample Location Maps



ATTACHMENT B

Laboratory Chemical Results

(Recent soil samples- see interim status reports for earlier lab sheets)



**OnSite
Environmental Inc.**
Analytical Testing and Mobile Laboratory Services

December 30, 2002

Gary Galloway
Galloway Environmental, Inc.
3102 220th Place SE
Samamish, WA 98075

Re: Analytical Data for Project Storey
Laboratory Reference No. 0212-122

Dear Gary:

Enclosed are the analytical results and associated quality control data for samples submitted on December 19, 2002.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 30, 2002
Samples Submitted: December 19, 2002
Lab Traveler: 12-122
Project: Storey

Case Narrative

Samples were collected on December 18, 2002. Samples were maintained at the laboratory at 4°C and followed SW846 analysis and extraction methods.

NWTPH Dx Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: December 30, 2002
Samples Submitted: December 19, 2002
Lab Traveler: 12-122
Project: Storey

NWTPH-Dx

Date Extracted: 12-20-02
Date Analyzed: 12-20-02

Matrix: Soil
Units: mg/Kg (ppm)

| | | | |
|--------------------|-----------------------|-----------------------|-----------------------|
| Client ID: | STOREY-SP-1-B | STOREY-SP-2-B | STOREY-SP-3-B |
| Lab ID: | 12-122-01 | 12-122-02 | 12-122-03 |
| Diesel Range: | 96 | 92 | 63 |
| PQL: | 28 | 29 | 29 |
| Identification: | Diesel Range Organics | Diesel Range Organics | Diesel Range Organics |
| Lube Oil Range: | 100 | 120 | 90 |
| PQL: | 57 | 59 | 58 |
| Identification: | Lube Oil | Lube Oil | Lube Oil |
| Surrogate Recovery | | | |
| o-Terphenyl: | 85% | 87% | 80% |
| Flags: | | | |

Date of Report: December 30, 2002
Samples Submitted: December 19, 2002
Lab Traveler: 12-122
Project: Storey

NWTPH-Dx

Date Extracted: 12-20-02
Date Analyzed: 12-20-02

Matrix: Soil
Units: mg/Kg (ppm)

| Client ID: | STOREY-SP-4-B | STOREY-SP-5-B | STOREY-SP-6-B |
|------------|---------------|---------------|---------------|
| Lab ID: | 12-122-04 | 12-122-05 | 12-122-06 |

| | | | |
|-----------------|-----------------------|-----------------------|-----------------------|
| Diesel Range: | 54 | 96 | 94 |
| PQL: | 29 | 29 | 29 |
| Identification: | Diesel Range Organics | Diesel Range Organics | Diesel Range Organics |

| | | | |
|-----------------|----------|----------|----------|
| Lube Oil Range: | 69 | 130 | 130 |
| PQL: | 59 | 58 | 57 |
| Identification: | Lube Oil | Lube Oil | Lube Oil |

| | | | |
|--------------------|-----|-----|-----|
| Surrogate Recovery | | | |
| o-Terphenyl: | 85% | 85% | 91% |

Flags:

Date of Report: December 30, 2002
Samples Submitted: December 19, 2002
Lab Traveler: 12-122
Project: Storey

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted: 12-20-02
Date Analyzed: 12-20-02

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: MB1220S2

Diesel Range: ND
PQL: 25
Identification: ---

Lube Oil Range: ND
PQL: 50
Identification: ---

Surrogate Recovery
o-Terphenyl: 105%

Flags:

Date of Report: December 30, 2002
Samples Submitted: December 19, 2002
Lab Traveler: 12-122
Project: Storey

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 12-20-02
Date Analyzed: 12-20-02

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 12-133-01 12-133-01 DUP

Diesel Range: 87.7 63.0

PQL: 25 25

RPD: 33

Surrogate Recovery

o-Terphenyl: 108% 99%

Flags:

Date of Report: December 30, 2002
Samples Submitted: December 19, 2002
Lab Traveler: 12-122
Project: Storey

% MOISTURE

Date Analyzed: 12-20-02

| Client ID | Lab ID | % Moisture |
|---------------|-----------|------------|
| STOREY-SP-1-B | 12-122-01 | 12 |
| STOREY-SP-2-B | 12-122-02 | 15 |
| STOREY-SP-3-B | 12-122-03 | 14 |
| STOREY-SP-4-B | 12-122-04 | 15 |
| STOREY-SP-5-B | 12-122-05 | 14 |
| STOREY-SP-6-B | 12-122-06 | 13 |



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- D - Data from 1: _____ dilution.
- E - The value reported exceeds the quantitation range, and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- G - Insufficient sample quantity for duplicate analysis.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- O - Hydrocarbons outside the defined gasoline range are present in the sample.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a silica gel cleanup procedure.
- Y - Sample extract treated with an acid cleanup procedure.
- Z -
- ND - Not Detected at PQL
- MRL - Method Reporting Limit
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference

