UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

May 25, 1993

Reply to
Attn of: WD-133

Steve Nygaard
Klickitat County Public Works
205 South Columbus, Room 103
Goldendale, Washington 98620

RE: Permanent Closure of Underground Storage Tanks at Klickitat County Shop, Facility ID #4-260106

Dear Mr. Nygaard:

The U.S. Environmental Protection Agency (EPA) received notification of tank closure for the fuel tanks at the (Klickitat County Shop located at E Main Street and NW Division Street, Glenwood, Washington.

Based on the information submitted, EPA has determined that closure of your tanks appears to conform to the permanent closure requirements stated in 40 C.F.R. §§ 280.71 and 280.72, and that existing soil and water appear to meet the Washington's cleanup levels for required petroleum releases. We are therefore closing the files for these tanks.

If you need additional information regarding this issue, please call me at (206) 553-2580.

Sincerely,

Katherine M. Holt

Katherine M. Holt, Data Manager
UST Program

cc: Robert Cutler, EPA/WOO
Jannine Jennings, Tribal UST Coordinator

Printed on Recycled Paper

From: ROBERT B CUTLER (RCUTLER)
To: hscott, gkeeler
Date: Thursday, May 6, 1993 3:35 pm
Subject: WDNR, Glenwwood, Yakima Reservation

5/6/93: Obe Dehimbo, WDNR, called. He reported that the soil pile had been removed to a rock quarry on 4/28/93. Testing showed clean. (Need to check this as previous reports showed a maximum of 16,000 ppm in soils excavated.)

From: HAROLD SCOTT (HSCOTT)
To: R0WOO1(RCUTLER)
Date: Friday, April 2, 1993 2:30 pm
Subject: Indian LUST Sites

Hello Robert-

The following covers our April 2, 1993, telephone conversation regarding the following LUST sites:

Coulee Dam - Coulee Express (4-020033). The results of the seven soil samples in the March 16, 1993, report from Anatek Labs indicates that the excavated soil samples are significantly below the Ecology cleanup standards. Therefore, I agree you should write a letter to the owner/operator that the soils can be returned to the pit. Please send Mayor Hartman and me a copy of your letter.

Glenwood - Klickitat Co. (4-260106). The Site Assessment Final Report for Groundwater Remediation (no date, but should be March 1993) prepared by Thomas H. Sunday Jr., E. P. Johnson Construction, Inc. & Environmental indicates that ground water samples are significantly below the Ecology cleanup standards. Therefore, Katie Holt will prepare a closure letter stating that the cleanup levels meet the Washington cleanup levels. A copy of the letter will be sent to you.

Toppenish - Chandler's General Store (4-260024). The Groundwater Monitoring Well Installation Report (March 1993) prepared by SAGE Earth Sciences, Inc. indicates the following:

-OFF-SITE ISSUE. There is strong indication, based on the results of the monitoring wells, that contamination did not come from off-site as Mr. Chandler believed. It would have been useful to have constructed additional monitoring wells between the corner monitoring wells (MW-2 and MW-3; MW-3 and MW-1) to better verify whether contamination was from off-site. Also, the Report comments that the true direction of the ground water flow was not obtained because the vertical and horizontal location by a surveyor.

-ON-SITE ISSUE. Since it appears that the contamination did not come from off-site, then it must have come from Mr. Chandler's facility. It is suggested that additional soil samples be collected and monitoring wells constructed south of the tank location and on both sides of West First Street since the previous contamination was detected below the sidewalk. Without this additional information we can not send Mr. Chandler a clean closure letter. If the results show the contamination is limited to being below the sidewalk and does not appear that it will cause any harm to public health or the environment then we could send him a closure letter addressing this situation.

Therefore, I agree you should send Mr. Chandler a letter regarding our concerns; please me a copy too.

Toppenish - My Brother's Place (unsure if a LUST). Based on Mr. Chandler's June 3, 1992, response to EPA's 9005 letter it does not appear that this is a LUST site. Therefore, I agree we do not need to send Mr. Chandler any comments on this site.

Thanks,
Harold

CC: JCABREZA, KHOLT

From: ROBERT B CUTLER (RCUTLER)
To: hscott
Date: Friday, March 26, 1993 8:20 am
Subject: Glenwood-Klickitat Co.

I have sent their final report to you in the mail today. It looks as if this one is clean. **Please confirm.**

Is EPA now sending out closure letters on finished sites? If so, what is the format? Does Deborah need to review them?

Robert Cutler/WOO

CC: jcabreza

Previous SA said all contaminated soils were removed. This GW remediation report looks OK. 4/2/93

From: ROBERT B CUTLER (RCUTLER)
To: hscott
Date: Wednesday, March 24, 1993 10:33 am
Subject: Glenwood-Klickitat Co.: 4-260106

Tom Sunday, contractor, called on 3/23/93. Final cleanup report should be mailed out tomorrow. The final sampling showed some erroneous data. Showed some diesel related data. They think that it was from the fish oil used in the bioremediation. They will send chromatographs of both substances for review (**you will need to look at this**).

Robert Cutler

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1(HSCOTT)
Date: Tuesday, February 9, 1993 3:01 pm
Subject: Glenwood-WDNR LUST Site

9/25/92: Tom Sunday, E.P. Johnson Construction, in providing an update on the Glenwood-Klickitat County Shop, told me about another project he was working on for WDNR in Glenwood. WDNR had not reported any cleanup to EPA, so I queried him further.

Site borders on the corner of Court and N. 2nd St. They had dug a 40' x 40' x 21' (deep) excavation. Groundwater was at 13'. Pumped and stored about 10,000 gallons of water in two temporary above-ground tanks on site. Groundwater removed showed 60 ppm TPH gas. Soil removed showed up to 16,000ppm TPH. Used test pits to confirm that it had not moved past the excavated area. Had to decide whether to do landfarming on site of 800-900 cubic yards or to stockpile and insert air venting pipes in the pile.

He said that everything was out of the pit, as confirmed by final sampling.

Problem was said to have originated when WDNR pulled out a 1,000 gallon UST 2 years ago. They removed the evident contamination and back filled with the contaminated fill they had excavated. Did not know who had removed.

He had removed the slab where the dispenser had been and discoverd gas in the soil. There was also a test pit dug to the north of the excavation where there had been an old wash rack and oil change pit (12' x 15' x15'), where he removed all the oil contaminated material.

He said the WDNR site assessor wanted Tom to submit a report to them and then WDNR would write up their own report for submitting to Ecology.

10/6/92: Susan Burgdorff, WDOE, CRO- Said that they had no reports of any LUST activitiy on the site.

10/23/92: Made a site visit. Video taken. Site report wriiten (sent by pouch today).

10/27/92: Tom Sunday called. He said that there is a new WDNR site manager: Opeyemi Dehimbo, 206-902-1162. There is a pile on site now that is 70' x 70' x 6'. He is looking at aerating on site using 6" perforated pipe set at 2' horizontal intervals and with 2" vertical breathers, in conjunction with blowers to remediate the soil pile. No benzene shows in the soil tests, but other results are:

16,000 TPH gas (highest reading)
250,000 ppb toluene
250,000 ppb ethylbenzene

100,000 ppb xylene
6.3 ppm lead

Water tests show:

60 ppm TPH gas
3,000 ppm xylene

As another issue, he said that there had been a post dip pit west of Court St. from the site.

10/28/92: Tom Sunday called and said that WDNR was rebidding the work on the site and that his company would not be bidding.

(Tried making contact with Dehimbo, but had trouble connecting.)

1/6/93: Talked to Obe Dehimbo, WDNR. Explained EPA's authority on Indian lands. He said that there was no release detected during the UST pull 2 years ago. He felt that they had problems with the contractor. There was contamination from heavy oils from an unknown source. The UST that was pulled was in good condition. **Did not know where the contamination came from.** He suspects there was some foul play. He plans to move the stockpile to State land to landfarm it. Personnel are going to properly trained to manage the soil. He will send a copy of the original UST Site Assessment to me.

12/21/92: Tom Sunday called. He said that they have about 1,200 cubic yards of gas contaminated soils stockpiled on site, otherwise it is cleaned up. Report will be forthcoming to WDNR in January 1993.

1/25/93: Received a copy of the original UST site assessment report. (sent to you today)

1/27/93: Obe Dehimbo, WDNR, called to ask if a permit was required to transport the stockpile. If it designates as a hazardous waste he would need a permit.

1/28/93: Obe Dehimbo, WDNR, called and said that state rules do not require a transporter number, nor does the county. (on voice mail)

I returned his call and told him that since it was on an Indian reservation the federal RCRA rules would govern and gave him Jack Boller's number (WOO).

1/29/93: Obe Dehimbo called and said that the soil from the sump, used as an UST, had been excavated (30 yards). Other soils did not have oils. He will send the final results on the excavations to close out this file.

CC: R10WD1(GPRICE)

R10 Facility ID: 0-426106 **Facility Name:** KLICKITAT COUNTY SHOP

I. Ownership of Tank(s)

System ID: 00340

R10 Owner ID: 340

Name: KLICKITAT COUNTY PUBLIC WORKS

Street: 205 S COLUMBIA, RM 103

City: Goldendale **County:** Klickitat

State: WA **ZIP:** 98620 -

Phone: (509) 773-5512 **Fax:**

Comments:

Contact: (if other than Owner)

Taxpayer ID: **S.S. No:**

New: ☐ **Amended:** ☐ **Closure:** ☑

System ID: 0426106

R10 Facility ID: 0-426106

Date Received: 09 Feb 1993

Facility Operator: ,
Last *First*

II. Location of Tank(s)

Name: KLICKITAT COUNTY SHOP

Street: E MAIN & NW DIVISION ST

City: Glenwood **County:** Klickitat

State: WA **ZIP:** 98619 -

Latitude: ° ' " **Longitude:** ° ' "

Phone:

Comments:

LUST-SITE. POSSIBLY DOE HAS GIVEN THIS A #-GMP
CLOSE FAC PER R. CUTLER 5/24/93-KMH

III. Type of Owner

Local Government

IV. Indian Lands

Indian Lands: ☑ Tanks are located on land within an Indian Reservation or on other trust lands.

Tribe Owned: ☐ Tanks are owned by native American nation or tribe.

Tribe: YAKAMA

R10 Facility ID: 0-426106 **Facility Name:** KLICKITAT COUNTY SHOP

V. Type of Facility

Describe the kind of facility:

Local Government

Comments: COUNTY SHOP

VI. Contact Persons in Charge of Tanks

Name: NYGAARD, STEVE **Address:** KLICKITAT COUNTY PUBLIC WORKS

Phone: (509) 773-5512 **Fax:**

Contact Type: ☐ Owner ☐ Operator ☐ CA Contact ☐ Manager ☐ Outreach ☐ Location Contact ☐ RP ☐ Fee Contact ☑ Other PROJECT MANAGER

VII. Financial Responsibility

Facility meets financial responsibility requirements: ☐

Check all that apply:

Self-Insured:	☐	**Letter of Credit:**	☐	**Comments:**
Insurance:	☐	**State Fund:**	☐	
Risk Retention Group:	☐	**Trust Fund:**	☐	
Guarantee:	☐	**Other:**	☐	
Surety Bond:	☐	**Not Listed:**	☐	

VIII. Certification

Name: **Title:** **Date:**

R10 Facility ID: 0-426106 **Facility Name:** KLICKITAT COUNTY SHOP

Latitude: ° ' " **Longitude:** ° ' "

IX. Description of Underground Storage Tanks

Federally Regulated: ☑	Compartment: ☐	AST: ☐	**Sys. Fac. ID:**	**0426106**
Amended Information: ☑	Manifolded: ☐	No Fee: ☐	**Tank ID:**	**001**

Tank Status: Permanently Out of Use **Comments:**

Rcvd:

Alt Tank ID: 1

Date Installed: Jan 1961 **Tank Capacity:** 1,000

Enter material of construction for the tank. You may supplement primary description with one of the Secondary Options.

Tank Material: Unknown **Comments:**

Sec. Tank Option: None

Check if tank has been repaired: ☐

Check if tank is used for emergency generator: ☐

Enter material of construction for the piping. You may supplement primary description with one of the Secondary Option

Piping Material: Unknown **Comments:**

Sec. Piping Option: None

Type of Pipe: Not Listed

Check if piping has been repaired: ☐

Substance: Diesel **Comments:**

CERCLA No.:

Description:

R10 Facility ID: 0-426106 Facility Name: KLICKITAT COUNTY SHOP

X. Tanks Out of Use, or Change in Service

NOTE: This section not available unless tank status at top of form is set to a form of closure.

Date Last Used:	31 Mar 1991	Closure Status:	Tank removed from ground
Date Closure Rcvd.:		Inert Fill :	None
Date Closed:	05 Sep 1991		

Site Assessment Completed: ☑ Evidence of a Leak Detected: ☑

XI. Certification of Compliance

Installer certified by tank & piping manufacturer: ☐

Installer certified or licensed by implementing agency: ☐

Installation inspected by registered engineer: ☐

Installation inspected & approved by implementing agency: ☐

Manufacturer's installation checklists have been completed: ☐

Another method allowed by State agency: ☐

Comments:

	Tank	Pipe
Manual tank gauging:	☐	
Tank tightness testing:	☐	
Inventory control:	☐	
Automatic tank gauging:	☐	
Vapor monitoring:	☐	☐
Groundwater monitoring:	☐	☐
SIR:	☐	☐
Interstit. Dbl-wall Monitor:	☐	☐
Interstit. Sec. Con. Monitor:	☐	☐

	Tank	Pipe
Auto line leak detector:		☐
Line tightness testing:		☐
Other method:	☐	☐
Deferred:	☐	☐
Not listed:	☑	☑

Comments:

Overfill Protected: ☐ Spill Protected: ☐ CP Met on Tank & Piping: ☐

☐ Check if deliveries limited to 25 gallons at a time (e.g., used oil tanks)

Name: Company:

R10 Facility ID: 0-426106 **Facility Name:** KLICKITAT COUNTY SHOP

Position: **Date Signed:**

R10 Facility ID: 0-426106 Facility Name: KLICKITAT COUNTY SHOP

IX. Description of Underground Storage Tanks

Federally Regulated: ☑ Compartment: ☐ AST: ☐
Amended Information: ☑ Manifolded: ☐ No Fee: ☐

Sys. Fac. ID: 0426106
Tank ID: 002

Tank Status: Permanently Out of Use
Comments:
Rcvd:
Alt Tank ID: 2

Date Installed: Jan 1982
Tank Capacity: 1,000

Enter material of construction for the tank. You may supplement primary description with one of the Secondary Options.

Tank Material: Unknown
Comments:
Sec. Tank Option: None

Check if tank has been repaired: ☐
Check if tank is used for emergency generator: ☐

Enter material of construction for the piping. You may supplement primary description with one of the Secondary Option

Piping Material: Unknown
Comments:
Sec. Piping Option: None

Type of Pipe: Not Listed
Check if piping has been repaired: ☐

Substance: Gasoline
Comments:
CERCLA No.:
Description:

R10 Facility ID: 0-426106 **Facility Name:** KLICKITAT COUNTY SHOP

X. Tanks Out of Use, or Change in Service

NOTE: This section not available unless tank status at top of form is set to a form of closure.

Date Last Used: 31 Mar 1991 **Closure Status:** Tank removed from ground

Date Closure Rcvd.: Inert Fill : None

Date Closed: 05 Sep 1991

Site Assessment Completed: ☑ **Evidence of a Leak Detected:** ☐

XI. Certification of Compliance

Installer certified by tank & piping manufacturer: ☐

Installer certified or licensed by implementing agency: ☐

Installation inspected by registered engineer: ☐

Installation inspected & approved by implementing agency: ☐

Manufacturer's installation checklists have been completed: ☐

Another method allowed by State agency: ☐

Comments:

		Tank/Pipe
Manual tank gauging:	☐	
Tank tightness testing:	☐	
Inventory control:	☐	
Automatic tank gauging:	☐	
Vapor monitoring:	☐	☐
Groundwater monitoring:	☐	☐
SIR:	☐	☐
Interstit. Dbl-wall Monitor:	☐	☐
Interstit. Sec. Con. Monitor:	☐	☐

		Tank/Pipe
Auto line leak detector:		☐
Line tightness testing:		☐
Other method:	☐	☐
Deferred:	☐	☐
Not listed:	☑	☑

Comments:

Overfill Protected: ☐ **Spill Protected:** ☐ **CP Met on Tank & Piping:** ☐

☐ **Check if deliveries limited to 25 gallons at a time (e.g., used oil tanks)**

Name: **Company:**

R10 Facility ID: 0-426106 **Facility Name:** KLICKITAT COUNTY SHOP

Position: **Date Signed:**

MEMORANDUM OF CALL

Previous editions usable

TO:

☐ YOU WERE CALLED BY– ☐ YOU WERE VISITED BY–

Tom Sunday

OF (Organization)

Glenwood Site

☐ PLEASE PHONE ▶ ☐ FTS ☐ AUTOVON

☐ WILL CALL AGAIN ☐ IS WAITING TO SEE YOU

☐ RETURNED YOUR CALL ☐ WISHES AN APPOINTMENT

MESSAGE

(1) Will resend report.

(2) Told that EPA would require that the County continue the cleanup on a normal time track and not wait until April.

RECEIVED BY	DATE	TIME
RBC	12/16	9:40

63-110 NSN 7540-00-634-4018 STANDARD FORM 63 (Rev. 8-81) Prescribed by GSA FPMR (41 CFR) 101–11.6

★ U.S. GPO: 1988 — 201-759

MEMORANDUM OF CALL

Previous editions usable

TO:

☐ YOU WERE CALLED BY– ☐ YOU WERE VISITED BY–

Tom Sunday

OF (Organization)

Glenwood - Klickitat Co.

☐ PLEASE PHONE ▶ ☐ FTS ☐ AUTOVON

☐ WILL CALL AGAIN ☐ IS WAITING TO SEE YOU

☐ RETURNED YOUR CALL ☐ WISHES AN APPOINTMENT

MESSAGE

MW-4 shows 1 ppm TPH → BTEX clean

Air injection system running again. Going to keep going until mid-Dec. + resample.

Sending results.

RECEIVED BY	DATE	TIME
RBC	11/13	3:30p

63-110 NSN 7540-00-634-4018 STANDARD FORM 63 (Rev. 8-81) Prescribed by GSA FPMR (41 CFR) 101–11.6

☆ U.S.G.P.O. 281-781/40006

From: ROBERT B CUTLER (RCUTLER)
To: hscott
Date: Thursday, December 24, 1992 9:49 am
Subject: Klickitat Co. Shop LUST: Yakima Resv

Below is an update on the Klickitat County Shop LUST site, Glenwood, WA, on the Yakima Reservation:

10/23/92: Visited site- no one there and air injection system not operating. (see video footage)

10/27/92: Tom Sunday (509-735-2479), contractor, advised that he had been unable to get out to do sampling, but would get out there Thursday. He will also check on the air injection pump operation to ascertain that it is working.

11/13/92: Tom Sunday, contractor, reported that the air injection system was operating. Sampling showed 1ppm TPH and BTEX clean in MW 4. Will keep the system going until mid-December and resample. Sending sampling results.

11/18/92: Received a project status update and monitoring well sampling results. (Sent ot R10)

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1:EWILMANN
Date: Monday, June 15, 1992 2:56 pm
Subject: Glenwood LUST Site, Glenwood

On June 10, 1992, Tom Sunday, E. P. Johnson, Inc., contractor, reported that the microbial ecology technique (bioremediation) of this site had been pushed back to the last of June-first half of July due to other contracts being done in conjunction with this one.

They will use well packers with microscopic air bleeding hose to pump air into MW-1 and MW-4. Also, perforated pipes will laid in a 15 foot radius around MW-4.

The site work should take one full day. Mr. Sunday will call you if I am not available (I will be gone June 29-July 20).

Robert

CC: R10WD1:VSTANSBE

9/3/92 - Michael Johnson
Still not started project

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1:JCABREZA
Date: Wednesday, December 18, 1991 3:21 pm
Subject: Glenwood LUST Site-Time Extension

The Glenwood LUST site is located to the northwest of Goldendale in the Cascade Mountains along the southwestern boundary of the Yakima Reservation. We had previously discussed how the county wished to wait to complete further work on the site until April, and you had said that they should go ahead now.

I received a call today from Klickitat County and the County Engineer is requesting that they be allowed to wait until April before proceeding any further with excavation at the site. The source of the contamination has been removed (i.e., tanks and piping). The property is a small lot and they are afraid that they will lose the ability to utilize their snow removal equipment. The are also worried about the road conditions and weather, as they have snow there now and the ground is frozen. The contamination does not seem to be moving, its an old leak, and there are monitoring wells installed that we could have them monitor periodically, according to them. They would rather cleanup a larger area in the Spring, if that scenario should actually happen somehow, rather than do it now.

It sounds like we might have to take some enforcement action to get them to move any faster and it does not seem to be worth the formal enforcement effort to make them do it 3-4 months sooner. Its not that they do not want to do it, it is simply a matter of agreeing on timing.

Let me know what you think.

Thanx.

Robert

CC: R10WD1:EWILMANN

From: ROBERT B CUTLER (RCUTLER)
To: Jcabreza
Date: Wednesday, October 7, 1992 11:46 am
Subject: KLICKITAT CO. LUST SITE, GLENWOOD

Tom Sunday, contractor, called to brief me on the status of remediation at the Klickitat Co. site in Glenwood. Bioremediation in progress through two wells, MW1 and MW4. Used 2 gallons of fish fertilizer to add nutrients to each well and injecting air through 4" perforated casing. County is running a compressor during the day. Started 3 weeks ago. Will do sampling within 2 weeks.

CC: vstansbe

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1:EWILMANN
Date: Wednesday, April 29, 1992 10:56 am
Subject: GLENWOOD LUST SITE

1. April 1, 1992: Tom Sunday, contractor, requested that they be allowed to wait until summer to begin work on the site. The groundwater is still high and by summer it should drop and resuspend much of the contamination in the soil, making for an easier and more complete cleanup.

EPA: After consultation with Eric Wilmanns, R10, Mr. Sunday was advised that the additonal waiting period was fine, as long as the monthly monitoring continued.

2. April 28, 1992: Tom Sunday, contractor, advised that he had not gotten out to the site to do the monthly montioring yet (he had been trying to get in touch with me for the past week- I was out of town). He is recommending a microbial ecology approach, as they have noticed a 50% reduction in contaminates so far. Oxygen would be added at the upgradient well and point of contamination well, and perforated pipes would be placed in some of the contaminated soil areas. Indigenous microbes would be used first. The oxygen would be injected by the use of compressed air. A packer would be placed in the well above the groundwater interface, with a perforated pipe placed in the well to disprese oxygen. If this does not work they would get some superbugs or pull the soil. A change from monthly sampling to quarterly sampling is requested (the April sampling event would be put off until May). Start up of the project would be sometime in May, and sampling would be performed beforehand to establish the base level.

EPA: After consultation with Eric Wilmanns, R10, Mr. Sunday was advised that the proposal seemed feasible. Quarterly monitoring of the wells was deemed appropriate. Mr. Sunday will call when the project startup is finalized, so that EPA may observe.

Note: Mr. Sunday gave a reference of (hardback) Hydrocarbon Contaminated Soil and Groundwater, Volume I, as a reference, by Paul T. Kosteck and Edward J. Callibresse, 1991, the sections on microbial ecology.

CC: R10WD1:VSTANSBE

From: JOAN CABREZA (JCABREZA)
To: R10MD1:WOO-SEA:R0WOO1:RCUTLER
Date: Thursday, December 19, 1991 8:38 am
Subject: Glenwood LUST Site-Time Extension -Reply

If the source is removed, and the plume is not going anywhere, I suppose 3-4 months is no big deal if its not hurting anything. We need to document our response for the file though.

Speaking of files, now that we are beginning to get more involved in cleanups, we need to get Vickey and Eric in the loop on these and begin establishing some documentation; our files are totally empty. We need to insure we have the documents (copies are OK) for all cleanups in the RO, and we need to develop a list. Vickey has many closures pending, and also needs to enter data into the database when sites are completed. Eric should be reviewing/providing engineering review on all closure plans and and we need some sort of sign-off I think. I still see the Ops being the main contacts, but we need to be uniform in our approach, and we have to get more info here in the RO too.

I think we need some sort of Regional policy on this, but you all need to be able to provide input too. I'll take a stab at getting something out this week for you guys in the Ops to comment on. Roles, etc. I still see all of you being the main contacts....

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1:EWILMANN
Date: Monday, December 2, 1991 2:00 pm
Subject: Glenwood LUST Site

Well, I have another one for you! The Glenwood LUST site is owned by Klickatat County and they would like to wait until April to do any further work. The consultant has recommended that they remove the contaminated soil and they have countered that they would like to wait until Spring before doing any further work, with the hope that it will bioremediate itself by then.

The consultant is going to send me the updated site characterization report tomorrow and call me back on Friday to discuss what the county desires to do, further. There are presently several monitoring wells on site, including two downgradient monitoring wells that presently show no contamination.

This may very well be a call on Joan's part since there is no technical reason to delay the cleanup. Maybe you could query her on this?

I'll give you a call when I have read the site characterization report.

Thanx

Robert

From: ERIC WILMANNS (EWILMANN)
To: RCUTLER
Date: Monday, December 9, 1991 8:15 am
Subject: roberts #2 lust site -Reply -Forwarded

Forwarded mail received from: JCABREZA

Robert,

I told Joan that we should have them excavate now, not spring. Joan agrees.

Thats one down. About Wapato.....I'll get back to you on that one tuesday or wednesday. I'm leaning twards a few monitoring wells unless the very high TPH soil was just a very small pocket, and the rest of the pit was below action levels.

Files: m0:MESSAGE

From: JOAN CABREZA (JCABREZA)
To: EWILMANN
Date: Monday, December 9, 1991 7:31 am
Subject: roberts #2 lust site -Reply

I agree...there is no point in waiting, and no one else is given extensions like that. If Glenwood is in W WA, Water table fluctuations may just spread it around more too.

From: ROBERT B CUTLER (RCUTLER)
To: hscott
Date: Friday, March 26, 1993 8:20 am
Subject: Glenwood-Klickitat Co.

I have sent their final report to you in the mail today. It looks as if this one is clean. **Please confirm.**

Is EPA now sending out closure letters on finished sites? If so, what is the format? Does Deborah need to review them?

Robert Cutler/WOO

CC: jcabreza

From: ROBERT B CUTLER (RCUTLER)
To: hscott
Date: Wednesday, March 24, 1993 10:33 am
Subject: Glenwood-Klickitat Co.: 4-260106

Tom Sunday, contractor, called on 3/23/93. Final cleanup report should be mailed out tomorrow. The final sampling showed some erroneous data. Showed some diesel related data. They think that it was from the fish oil used in the bioremediation. They will send chromatographs of both substances for review **(you will need to look at this)**.

Robert Cutler

From: HAROLD SCOTT (HSCOTT)
To: RCUTLER
Date: Friday, April 2, 1993 1:08 pm
Subject: Indian LUST Sites

Hello Robert-

The following covers our April 2, 1993, telephone conversation regarding the following LUST sites:

Coulee Dam - Coulee Express (4-020033). The results of the seven soil samples in the March 16, 1993, report from Anatek Labs indicates that the excavated soil samples are significantly below the Ecology cleanup standards. Therefore, I agree you should write a letter to the owner/operator that the soils can be returned to the pit. Please send Mayor Hartman and me a copy of your letter.

Glenwood - Klickitat Co. (4-260106). The Site Assessment Final Report for Groundwater Remediation (no date, but should be March 1993) prepared by Thomas H. Sunday Jr., E. P. Johnson Construction, Inc. & Environmental indicates that ground water samples are significantly below the Ecology cleanup standards. Therefore, Katie Holt will prepare a closure letter stating that the cleanup levels meet the Washington cleanup levels. A copy of the letter will be sent to you.

Toppenish - Chandler's General Store (4-260024). The Groundwater Monitoring Well Installation Report (March 1993) prepared by SAGE Earth Sciences, Inc. indicates the following:

-OFF-SITE ISSUE. There is strong indication, based on the results of the monitoring wells, that contamination did not come from off-site as Mr. Chandler believed. It would have been useful to have constructed additional monitoring wells between the corner monitoring wells (MW-2 and MW-3; MW-3 and MW-1) to better verify whether contamination was from off-site. Also, the Report comments that the true direction of the ground water flow was not obtained because the vertical and horizontal location by a surveyor.

-ON-SITE ISSUE. Since it appears that the contamination did not come from off-site, then it must have come from Mr. Chandler's facility. It is suggested that additional soil samples be collected and monitoring wells constructed south of the tank location and on both sides of West First Street since the previous contamination was detected below the sidewalk. Without this additional information we can not send Mr. Chandler a clean closure letter. If the results show the contamination is limited to being below the sidewalk and does not appear that it will cause any harm to public health or the environment then we could send him a closure letter addressing this situation.

Therefore, I agree you should send Mr. Chandler a letter regarding our concerns; please me a copy too.

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-0[illegible]

RECEIVED
JAN 27 1992
EPA-WOO

January 23, 1992

Environmental Protection Agency
c/o Washington State Department of Ecology
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Mr. Robert Cutler

Re: **Monthly Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-1 through MW-4) were sampled January 16, 1992. Wells MW-1, 2, and 3 were sampled and submitted for HCID analysis. All three wells were clean. Well MW-4 had visual, and olfactory (sense of smell) indications of gasoline contamination observed during sample collection. A table has been formulated to track the well sampling results from these four wells. A form has also been generated to document field information related to the well sampling. This information shall be updated and sent to you after the laboratory sampling results are known from each monthly interval.

As you can see, based on the laboratory data table and the field notes, there appears to be a discrepancy between the initial October analyses and the January data. Several conjectures are possible to account for this change. However conclusive information cannot be attained without further sampling and analyses over time.

If you should have any questions, or require additional information, please call me at (509) 735-2479.

Sincerely,
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered State Site Assessor

cc: Mr. Steve Nygaard, Klickitat County w/attachment
Project File

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	<1	<1	<1	<1	<1	N/A
	JAN/92	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92						
	MAR/92						
	APR/92						
MW-2	OCT/91	<1	<1	<1	<1	<1	N/A
	JAN/92	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92						
	MAR/92						
	APR/92						
MW-3	OCT/91	<1	<1	<1	<1	<1	N/A
	JAN/92	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92						
	MAR/92						
	APR/92						
MW-4	OCT/91	4 *	15 *	22	<1	58 *	N/A
	JAN/92	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92						
	MAR/92						
	APR/92						

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-0331

RECEIVED
APR 06 1992
EPA - WOO

April 3, 1992

Environmental Protection Agency
c/o Washington State Department of Ecology
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Mr. Robert Cutler

Re: **Monthly Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-1 through MW-4) were sampled March 26, 1992. Wells MW-1, 2, and 3 were sampled and submitted for Total Petroleum Fuel Hydrocarbon analysis (an equivalent method to WHCID in soils). All three wells were clean. Well MW-4 had visual, and olfactory (sense of smell) indications of gasoline contamination observed during sample collection. The data tabulation table and field sampling logs have been updated and are enclosed for your review.

The data indicate a decrease in gasoline TPH as well as Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). The data further indicate a relatively stable groundwater elevation as compared to the previous months information.

From our recent conversations, it is understood that approval has been granted to extend the previously scheduled remediation, April 1992, until such time that the groundwater elevation declines to or near the levels measured in the October 1991 sampling. It is also understood that continued sampling is required if the remediation is extended. The customer however, does reserve the right to proceed or extend the current remediation schedule.

We are currently evaluating some new technologies available for the in-situ treatment of petroleum contaminated groundwater and saturated soils using a Microbial Ecology Approach (MEA). The physical site favors in-situ treatment due to its small size and apparent <u>low</u> hydraulic conductivity of the contaminated soils. Using an in-situ approach, if effective, would be cost effective to the customer and provide no secondary wastes for treatment and/or disposal off-site.

I expect to notify your office within two weeks of the date of this letter, of the remedial action selected, description of the technology to be applied, and the schedule for initiation and expected completion. If you should have any questions, or require additional information, please call me at (509) 735-2479.

Sincerely,
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered State Site Assessor

cc: Mr. Steve Nygaard, Klickitat County w/attachment
Project File

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	DEPTH TO GW (FEET)	8015 TPH GAS ppm	(8020 SOIL, 602 WATER) BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	11.83	<1	<1	<1	<1	<1	N/A
	JAN/92	9.67	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	8.46	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	8.50	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92							
MW-2	OCT/91	12.33	<1	<1	<1	<1	<1	N/A
	JAN/92	10.42	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.17	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.25	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92							
MW-3	OCT/91	12.25	<1	<1	<1	<1	<1	N/A
	JAN/92	10.33	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.00	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.21	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92							
MW-4	OCT/91	13.25	4 *	15 *	22	<1	58 *	N/A
	JAN/92	10.33	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92	9.00	30 *	63 *	160 *	64 *	2760 *	N/A
	MAR/92	9.17	13 *	99 *	130 *	<22	1300 *	N/A
	APR/92							

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

FIELD QUALITY CONTROL SAMPLING

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
DECON (MW-4 DUP)	FEB/92	20 *	62 *	120 *	60 *	2400 *	N/A
	MAR/92	13 *	99 *	130 *	<22	1300 *	N/A
	APR/92						
RINSATE (RINSE) (BLANK)	FEB/92	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92						

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

Tom Sunday 11/27/91

Glenwood - old fill in area (Co. Shop employees)

clayey soils

no contamination off-site on down gradient

Wants to go in + dig out, + put contaminated water in barrels + haul out to

1-2 wks start backhoe opns

From: ROBERT B CUTLER (RCUTLER)
To: hscott
Date: Thursday, December 24, 1992 9:49 am
Subject: Klickitat Co. Shop LUST: Yakima Resv

Below is an update on the Klickitat County Shop LUST site, Glenwood, WA, on the Yakima Reservation:

10/23/92: Visited site- no one there and air injection system not operating. (see video footage)

10/27/92: Tom Sunday (509-735-2479), contractor, advised that he had been unable to get out to do sampling, but would get out there Thursday. He will also check on the air injection pump operation to ascertain that it is working.

11/13/92: Tom Sunday, contractor, reported that the air injection system was operating. Sampling showed 1ppm TPH and BTEX clean in MW 4. Will keep the system going until mid-December and resample. Sending sampling results.

11/18/92: Received a project status update and monitoring well sampling results. (Sent ot R10)

U.S. Environmental Protection Agency
Washington Operations Office

11/26/91

UST SITE VISIT CHECKLIST

Date 10/23/92	Time
Fac. ID	Contact
Owner Klickitat Co. Public Works	Fac. Name Glenwood-Klickitat Co. Shop
Address NW Corner of E. Main & Division	Location 205 South Columbia
Glenwood, WA	Goldendale, WA 98620
Phone (509-773-5512, Goldendale)	Phone

NOT. DATA

Tank #	1	2	3	4	5	6	7
Capacity							
Substance							
Status							
Installed							
Material-T							
Material-P							
RD-Tank							
RD-Pipe							
Cor. Prot.							
Spill							
Overfill							

NOT. CHGS

Tank #	1	2	3	4	5	6	7
Capacity	1,000	1,000					
Substance	D	G					
Status	P	P					
Installed							
Material-T							
Material-P							
RD-Tank							
RD-Pipe							
Cor. Prot.							
Spill							
Overfill							

Not. Com.: _____

SITE INFO Level ground - loam w/ glacial gravels. On main road corner.

- See video footage

RECORDS

ADD. COM: No one at facility. Observed well locations. Wells with air being pumped showed 0 pressure - pump not on.

SUMMARY: Ck pump status w/ Tom Sunday
10/27 He will check on pump status and get samples soon.

Robert M. Lutke
Inspector

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1:EWILMANN
Date: Monday, June 15, 1992 2:56 pm
Subject: Glenwood LUST Site, Glenwood

On June 10, 1992, Tom Sunday, E. P. Johnson, Inc., contractor, reported that the microbial ecology technique (bioremediation) of this site had been pushed back to the last of June-first half of July due to other contracts being done in conjunction with this one.

They will use well packers with microscopic air bleeding hose to pump air into MW-1 and MW-4. Also, perforated pipes will laid in a 15 foot radius around MW-4.

The site work should take one full day. Mr. Sunday will call you if I am not available (I will be gone June 29-July 20).

Robert

CC: R10WD1:VSTANSBE

United States
Environmental Protection
Agency

on 10
ashington Operations Office
c/o Washington Department of Ecology, PV-11
Olympia WA 98504

ington

EPA

USEPA, REGION 10
WATER DIVISION
OFFICE OF THE DEPUTY DIRECTOR
MAR 4 1992

March 2, 1992

Reply To
Attn Of: WOO

MEMORANDUM

SUBJECT: Glenwood LUST Site-Request for Extension

FROM: Robert B. Cutler
UST Program Coordinator
Washington Operations Office

TO: Eric Wilmanns
Engineer
EPA Region 10

The enclosed report covers the monitoring results for the Glenwood LUST site. Please review the report. The consultant is recommending that further remediation be delayed until late summer when the water table has dropped. It appears that the water table has risen and the level of contamination increased as the groundwater has contacted contaminated soils. Let me know if you think we should go along with the recommendations (It looks fine to me.).

Enclosure

United States
Environmental Protection
Agency

10
ngton Operations Office
c/o Washington Department of Ecology, PV-11
Olympia WA 98504

ton

EPA

December 23, 1991

Steve Nygaard, Project Manager
Klickitat County Public Works
205 S. Columbus
Room 103
Goldendale, Washington 98620

DEC 26 1991
OP & PM

Re: Glenwood Contaminated Site

Dear Mr. Nygaard:

This letter is in reference to your request to delay further cleanup work on your Glenwood site until April 1992, due to weather and road conditions in the area. The Environmental Protection Agency (EPA) can accept this schedule for further remediation at the site, provided the following conditions are followed:

1. Klickitat County Public Works samples monitoring wells 1, 2, and 3 monthly for Total Petroleum Hydrocarbons, gas (TPH, gas) and benzene, toluene, ethyl-benzene, and xylene (BTEX). This sample data to be included in your final cleanup report.

2. If contamination should be detected in monitoring wells 1, 2, or 3, then appropriate remediation shall begin immediately to stop the further spread of the contamination.

If you should have any further questions on your cleanup, please feel free to contact me at (206) 753-9543. Also, please advise me when resuming work on the site in April.

Sincerely,

Robert B. Cutler

Robert B. Cutler
UST Program Coordinator
Washington Operations Office

cc: Eric Wilmanns, WD-139
Tom Sunday, E. P. Johnson Construction, Inc.

file. TOP. Sus gar.

From: ROBERT B CUTLER (RCUTLER)
To: R10WD1:JCABREZA
Date: Wednesday, December 18, 1991 3:21 pm
Subject: Glenwood LUST Site-Time Extension

The Glenwood LUST site is located to the northwest of Goldendale in the Cascade Mountains along the southwestern boundary of the Yakima Reservation. We had previously discussed how the county wished to wait to complete further work on the site until April, and you had said that they should go ahead now.

I received a call today from Klickitat County and the County Engineer is requesting that they be allowed to wait until April before proceeding any further with excavation at the site. The source of the contamination has been removed (i.e., tanks and piping). The property is a small lot and they are afraid that they will lose the ability to utilize their snow removal equipment. The are also worried about the road conditions and weather, as they have snow there now and the ground is frozen. The contamination does not seem to be moving, its an old leak, and there are monitoring wells installed that we could have them monitor periodically, according to them. They would rather cleanup a larger area in the Spring, if that scenario should actually happen somehow, rather than do it now.

It sounds like we might have to take some enforcement action to get them to move any faster and it does not seem to be worth the formal enforcement effort to make them do it 3-4 months sooner. Its not that they do not want to do it, it is simply a matter of agreeing on timing.

Let me know what you think.

Thanx.

Robert

CC: R10WD1:EWILMANN

MEMORANDUM OF CALL

Previous editions usable

TO: Robert

☐ YOU WERE CALLED BY– ☐ YOU WERE VISITED BY–

Tom Sunday

OF (Organization) E.P. Johnson

☐ PLEASE PHONE ▶ ☐ FTS ☐ AUTOVON

509-735-2479 or 896-5412

☐ WILL CALL AGAIN ☐ IS WAITING TO SEE YOU

☐ RETURNED YOUR CALL ☐ WISHES AN APPOINTMENT

MESSAGE

Will start well drilling at Glenwood on Wed.

RECEIVED BY	DATE	TIME
RBC	9/30	

63-110 NSN 7540-00-634-4018

STANDARD FORM 63 (Rev. 8-81)
Prescribed by GSA
FPMR (41 CFR) 101—11.6

★ U.S. GPO: 1988 — 201-759

INTERIM STATUS REPORT

SITE ASSESSMENT
for

KLICKITAT COUNTY PUBLIC WORKS
BICKLETON, GLENWOOD, AND LYLE, WASHINGTON.

Prepared by:
Thomas H. Sunday Jr.
E.P. Johnson Construction, Inc.

October 4, 1991

Glenwood, Wa.

1.0 General Information.

Site name:	Klickitat County Shop.
PLP:	Klickitat County Public Works.
PLP Contact:	Mr. Steve Nygaard.
Address:	205 South Columbia, Goldendale, Wa. 98620
County:	Klickitat. SW 1/4, Section 10, T6N, R12E
Phone:	(509) 773-5512

2.0 Introduction.

E.P. Johnson Construction, Inc. was contracted to provide services for the complete removal of two fuel tanks, product piping and dispensing pumps in the town of Glenwood. The contract also provided for the site assessment to be conducted during the removal process.

The site is located on the NW corner of E. Main and Division streets in Glenwood, Wa. Two tanks were removed from the property. The tanks were bedded in a medium to coarse grained sand end to end with the 1000 gallon diesel tank on the west and the 1000 gallon gasoline tank to the east. The product piping ran northward approximately 15 feet to the pump island containing one diesel and one gasoline pump.

3.0 Discovery.

After the complete removal of the diesel and gasoline fuel tanks, no soil contamination was detected. The tanks were found to be in good condition with no evident holes. Laboratory analyses confirmed the absence of contamination. After the removal of the pump island contamination was detected beneath the fuel dispensing pumps. Further analysis revealed the presence of gasoline, extending downward to the groundwater table located at approximately 13 feet. A specific quantity of fuel released could not be immediately determined. The release is suspected to have occurred via the union connecting the product piping to the pump assembly. Field screening and laboratory samples confirmed the presence of the contaminant.

The tanks, piping, and pump dispensers were removed on September 5, 1991. The remaining product in each tank was removed approximately March of this year. Initial notification was made to the DOE concerning the contamination. However, the DOE stated that the Glenwood site was located within the boundaries of the Yakima Indian Reservation. Therefore, notification of the contamination was made to the Environmental Protection Agency Tuesday, September 10, 1991.

4.0 Interim Actions.

PCS removal commenced on Wednesday September 11, 1991 and was completed that same day. Approximately 90 cubic yards of material was removed prior to encountering an apparent groundwater table at 13 feet below the surface. Laboratory samples were taken of the groundwater and soils at the interface. The groundwater was found to contain 110 ppm of gasoline (Total Petroleum Hydrocarbons EPA method 8015). There was no distinct free product detected. The soils at the interface also were contaminated at levels of 700 to 900 ppm using the same analytical method. Further excavation was immediately aborted. The site was subsequently backfilled to eliminate a potential safety hazard given the close proximity to the county road.

Monitoring wells were installed on Wednesday October 3, 1991. Based on informal interviews, the groundwater flow direction was reported to be to the south, slightly southeast direction. One well was placed upgradient to the north and two wells were installed downgradient to the south and southeast directions. A fourth well was installed at the previously excavated site to act as a pumping well for contaminated groundwater removal. The wells were drilled to a depth of 20 feet. Each well features a 4 inch diameter pvc 10 foot screen, 20 slots per inch, with a silica sand pack around the screened interval and a bentonite surface seal. Security casings were installed and cemented in place.

The upgradient and both downgradient wells contained no sign of contamination present in the soil samples which were taken at 5 foot intervals. The source well soil samples were contaminated with gasoline products from approximately the 10 foot depth to the bottom. Soils from this well were contained and shall be disposed of as PCS to the Roosevelt landfill by Klickitat County personnel.

The wells were developed Monday, October 7, 1991. The well installation and the development was performed by Tacoma Pump and Drill, a Washington state licensed firm. Laboratory samples were collected on October 17, 1991. The three wells triangulating the contamination source were non contaminated. The source well groundwater was found to contain 4 ppm (Total Petroleum Hydrocarbons by EPA method 8015). Benzene, Toluene, Ethylbenzene, and Xylenes were also detected from these analyses. Further actions are currently being considered for the extraction, treatment, and or disposal of the contaminated groundwater. As the cleanup actions progress further updates shall be made accordingly.

Bickleton, Wa.

1.0 General Information.

Site name:	Klickitat County Shop.
PLP:	Klickitat County Public Works.
PLP Contact:	Mr. Steve Nygaard.
Address:	205 South Columbia, Goldendale, Wa. 98620
County:	Klickitat. SW 1/4, Section 15, T6N, R20E
Phone:	(509) 773-5512

2.0 Introduction.

E.P. Johnson Construction, Inc. was contracted to provide services for the complete removal of two fuel tanks, piping and dispensing pumps in the town of Bickleton. The contract also provided for the site assessment to be conducted during the removal process.

The site contained two underground storage tanks. A 1000 gallon gasoline tank was located inside a storage building with the dispensing pump directly over the south end of the tank, and a 1500 gallon diesel fuel tank was located directly behind the new shop building with the product piping running eastward approximately 50 feet to a dispensing pump.

3.0 Discovery.

After the complete removal of the diesel fuel tank, no soil or liquid contamination was detected. The tank was found to be in good condition with no evident holes. Laboratory analyses confirmed the absence of contamination. After the removal of the product piping and dispensing pump, contamination was detected beneath the pump location. Further analysis revealed the presence of both diesel fuel, mostly limited in the upper soils, and gasoline, extending downward to the bedrock formations approximately 8 feet beneath the surface. A specific quantity of either fuel released could not be immediately determined. Based on informal interviews with local county shop employees, it was discovered that services had been changed from one tank to the other at some time in the past. The tank which last contained diesel fuel had at one time contained and dispensed gasoline from this same pump. The release is suspected to have occurred via the union connecting the product piping to the pump assembly. Field screening and laboratory samples confirmed the presence of the contaminants.

After the complete removal of the gasoline fuel tank, a small quantity of liquid, possibly condensation, was found to be contaminated with gasoline. No apparent free product was observed and the liquid was easily removed with the immediate underlying soils. The tank was found to have four small holes, 2 to 4 mm in size, located near the bottom north end. A specific quantity of fuel released could not be immediately determined. As previously mentioned, the tank had at one time also contained and dispensed diesel fuel.

An additional source of soil contamination was also detected in the immediate area. Waste oil drums, stored on the soil surface, were found immediately north of the gasoline tank inside the storage building. Waste oils had obviously been spilled from the drum filling process. The drums did not appear to be directly leaking.

Another apparent soil contamination area was found outside of the storage building immediately west of the gasoline tank location. Based on informal interviews with county shop personnel, it was discovered that an above ground diesel fuel tank was previously positioned west of the storage building. Soils in this area were found to be contaminated with diesel fuels and some oils.

The products in each tank were removed approximately August 30, 1991. The tanks, piping, and pump dispensers were removed on September 4, 1991. The soils beneath the gas tank, approximately 5 cubic yards were also removed on this date and stockpiled on 6 mil visqueen. Initial DOE notification was made on September 5, 1991. The complete notification was not made until Monday, September 9, 1991 due to the absence of DOE personnel in training the prior week. At this time, and currently, there is no threat to public health or the environment from this soil contamination.

4.0 Interim Actions.

Petroleum Contaminated Soil (PCS) removal commenced on Monday September 9, 1991. To date, approximately 1775 cubic yards of material has been removed. Of this total, 625 cubic yards were removed as clean overburden to enable removal of gasoline contaminated soils and fractured basalt. All PCS has been removed by Klickitat County personnel and disposed of at the Roosevelt landfill. The interim cleanup action was completed as of October 4, 1991. Laboratory samples were taken and submitted to determine the overall effectiveness of the cleanup. The sample results indicate that non contaminated horizontal limits were achieved except in those areas where soils directly supported building structures. The vertical limits of the excavation are primarily governed by the presence of hard bedrock. In some areas, loose soils at a thickness of approximately 1 to 2 inches remained on the bedrock. These soils remain contaminated at levels above prescribed DOE cleanup limits but shall pose no threat to the public or the environment in this area.

The areas of known contamination shall remain on the property at the owners request. These areas are limited to the soils beneath the concrete footers of the buildings and possibly some of the underlying basalt and bedrock beneath the center area of the storage building. Further PCS removal inside the center of the storage building cannot be completed without unrepairable damage to or complete removal of the building. The direction of travel for the gasoline at the surface of the bedrock and basalt is to the southeast from the source (outside pump). Two test pits were dug to confirm travel of the contamination beyond the building to the southeast. Laboratory samples confirmed the absence of contamination beyond the limits of the storage building to the southeast.

Due to the nature of the contamination and its proximity to endangering public water or local environmental systems, no further cleanup actions are planed for the Bickleton site. A complete report shall be submitted to the DOE per the established guidelines of the Site Assessment Guidance document.

Lyle, Wa.

1.0 General Information.

Site name:	Klickitat County Shop.
PLP:	Klickitat County Public Works.
PLP Contact:	Mr. Steve Nygaard.
Address:	205 South Columbia, Goldendale, Wa. 98620
County:	Klickitat. NE 1/4, Section 3, T3N, R12E
Phone:	(509) 773-5512

2.0 Introduction.

E.P. Johnson Construction, Inc. was contracted to provide services for the complete removal of three fuel tanks, piping and dispensing pumps in the town of Lyle. The contract also provided for the site assessment to be conducted during the removal process.

The site contained three tanks and a single pump island with one diesel and one gasoline pump. The two diesel tanks, one 1000 gallon and one 500 gallon, were bedded parallel in a course sand and gravel. These tanks were located to the south of a small storage shed. The gasoline tank, 1000 gallon, was also bedded in a coarse grained sand and gravel, to the north of the storage shed.

3.0 Discovery.

After the complete removal of the three tanks an external examination revealed the presence of several small (2 to 15 mm) holes in the 500 gallon diesel tank. These holes were located throughout the bottom and side portions of the tank. The 1000 gallon diesel tank was found to be in good condition with no holes or evident leakage. The 1000 gallon gasoline tank had only one hole, approximately 2 mm diameter located near the east end on the side. This hole does not appear to have contributed to a release of gasoline beneath the tank. The bedding material revealed no field evidence of leakage and laboratory analyses confirmed the absence of gasoline contamination.

The two diesel fuel tanks were removed on September 6, 1991 and the gasoline tank was removed on September 12, 1991. The delay in the removal of the gasoline tank allowed for the removal of a nearby power pole which was dangerously close to the west end of the tank. Product from all tanks was removed approximately September 2, 1991.

The 500 gallon diesel tank was reported to have failed a recent tightness test. The approximate volume of material released as a result of the test was estimated at 350 to 400 gallons. However, with the current condition of the tank, it is evident that some quantity of fuel had been leaking prior to the test date.

4.0 Interim Actions.

The removal of contaminated soils began Wednesday, September 11, 1991. The small storage shed was moved to permit space to excavate the gravels beneath the diesel tanks. The presence of hydraulic oils was discovered beneath the storage shed. These materials were excavated as PCS to provide a ramp down area for the excavation equipment. Gravels, well graded, were encountered consistently to a total depth of approximately 30 feet below the surface. At this depth field analyses indicated the possible cleanup of the diesel fuel. Laboratory sample analyses confirmed diesel contamination to be within limits.

Based on informal interviews, the location of the county shop was once an asphalt batching plant. Several samples obtained of the gravels at almost all depths contained evidence of asphalt or road oil products. Laboratory samples confirmed the presence of heavy oils via the Hydrocarbon Identification analysis (HCID). Samples of asphalt and the typical road oil (CMS2S) used by the county were taken for laboratory chromatogram comparison. The results of this comparison have not been reported to date.

A city water well, backup use only, was identified downgradient of the proposed source of contamination. This well, to be further identified in the characterization report, was sampled and analyzed for the presence of diesel fuel. The laboratory analysis reported no contamination of diesel or other petroleum hydrocarbons.

The site has presently been backfilled to grade, and the PCS has been transported to the Roosevelt landfill for disposal by the Klickitat County personnel.

Due to the apparent cleanup of the diesel contamination and the lack of evidence endangering public water or local environmental systems no further cleanup actions are planed for the Lyle site. A complete report shall be submitted to the DOE per the established guidelines of the Site Assessment Guidance document.

RECEIVED
NOV - 7 1991
EPA - WOO

Tom Sunday

GW - Wells
1 UP
2 DWN > no cont.
water - 12-13'
1 pump & treat in excavation
6" water

may excavate

water flow to SE(?)

Will send report tomorrow.

RBC

10/16

RECEIVED
NOV - 7 1991
EPA - WOO

United States
Environmental Protection
Agency

Region 10
Washington Operations Office
c/o Washington Department of Ecology, PV-11
Olympia WA 98504

Washington

EPA

December 23, 1991

Steve Nygaard, Project Manager
Klickitat County Public Works
205 S. Columbus
Room 103
Goldendale, Washington 98620

Re: Glenwood Contaminated Site

Dear Mr. Nygaard:

This letter is in reference to your request to delay further cleanup work on your Glenwood site until April 1992, due to weather and road conditions in the area. The Environmental Protection Agency (EPA) can accept this schedule for further remediation at the site, provided the following conditions are followed:

1. Klickitat County Public Works samples monitoring wells 1, 2, and 3 monthly for Total Petroleum Hydrocarbons, gas (TPH, gas) and benzene, toluene, ethyl-benzene, and xylene (BTEX). This sample data to be included in your final cleanup report.

2. If contamination should be detected in monitoring wells 1, 2, or 3, then appropriate remediation shall begin immediately to stop the further spread of the contamination.

If you should have any further questions on your cleanup, please feel free to contact me at (206) 753-9543. Also, please advise me when resuming work on the site in April.

Sincerely,

Robert B. Cutler

Robert B. Cutler
UST Program Coordinator
Washington Operations Office

cc: Eric Wilmanns, WD-139
Tom Sunday, E. P. Johnson Construction, Inc.

9/17 – N 130A

Glenwood – Klickitat Co.

Tom Sunday, Site Assessor
E. P. Johnson Contstruction & Technical Services, Kennewick
509 – 735 – 2479

Remove Unleaded & Diesel USTs – soil clean
piping – clean
gas pump – leaking
Dug hole 10' wide & 13' deep (hit ground water)
flow appears to be SW

Testing:

110 PPM	Gas	8015	
340 ppm	Benzene	8020	No free product
1200 "	Toulene		
88 "	Ethylbenzene		
2480 "	Total		

Proposing 4 monitor wells to be done w/i 2 weeks – Tacoma Pump & Drill

Will use Pump & Treat w/aeration – will have stock tanks & air blower

After treatment will dispose of effluent to stormwater ditch for disposal

Informed Delano Salnskin by msg

United States
Environmental Protection
Agency

Region 10
Washington Operations Office
c/o Washington Department of Ecology, PV-11
Olympia WA 98504

Washington

EPA

March 2, 1992

Reply To
Attn Of: WOO

MEMORANDUM

SUBJECT: Glenwood LUST Site-Request for Extension

FROM: Robert B. Cutler
UST Program Coordinator
Washington Operations Office

TO: Eric Wilmanns
Engineer
EPA Region 10

The enclosed report covers the monitoring results for the Glenwood LUST site. Please review the report. The consultant is recommending that further remediation be delayed until late summer when the water table has dropped. It appears that the water table has risen and the level of contamination increased as the groundwater has contacted contaminated soils. Let me know if you think we should go along with the recommendations (It looks fine to me.).

Enclosure

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-088

RECEIVED
FEB 28 1992
EPA - WOO

February 26, 1992

Environmental Protection Agency
c/o Washington State Department of Ecology
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Mr. Robert Cutler

Re: **Monthly Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-1 through MW-4) were sampled February 19, 1992. Wells MW-1, 2, and 3 were sampled and submitted for HCID analysis. All three wells were clean. Well MW-4 had visual, and olfactory (sense of smell) indications of gasoline contamination observed during sample collection. A table has been formulated to track the well sampling results from these four wells. A form has also been generated to document field information related to the well sampling. This information shall be updated and sent to you after the laboratory sampling results are known from each monthly interval.

The data clearly indicate an increase in contaminant levels as well as a substantial rise in the water table elevation. This increase can be attributed to the rise in the water table placing the groundwater in contact with a greater volume of contaminated soils. Based on this information, contaminant concentrations in the groundwater are expected to increase over the next few months as the spring snow melt from the Mount Adams vicinity will cause the water table to rise further. At this point, the data do not suggest a downstream migration of the contamination. However, as the water table continues to rise, it is possible that the contamination may break through the confining soils and migrate downstream.

Given the data presented thus far, I would recommend postponement of the proposed contaminated soil excavation in April, 1992, until the late summer months when the groundwater table is expected to be at its lowest elevation, as long as the continued downstream monitoring indicates no migration of the contaminated groundwater. If migration is confirmed, then immediate actions would be warranted for pump and treat of groundwater, excavation, or a combination of both actions.

In the meantime, continued monthly sampling of the wells shall be performed per your request, and the data analysis presented to your office in a timely manner. If you should have any questions, or require additional information, please call me at (509) 735-2479.

Sincerely,
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered State Site Assessor

cc: Mr. Steve Nygaard, Klickitat County w/attachment
Project File

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	DEPTH TO GW (FEET)	8015 TPH GAS ppm	(8020 SOIL, 602 WATER) BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	11.83	<1	<1	<1	<1	<1	N/A
	JAN/92	9.67	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	8.46	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92							
	APR/92							
MW-2	OCT/91	12.33	<1	<1	<1	<1	<1	N/A
	JAN/92	10.42	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.17	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92							
	APR/92							
MW-3	OCT/91	12.25	<1	<1	<1	<1	<1	N/A
	JAN/92	10.33	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.00	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92							
	APR/92							
MW-4	OCT/91	13.25	4 *	15 *	22	<1	58 *	N/A
	JAN/92	10.33	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92	9.00	30 *	63 *	160 *	64 *	2760 *	N/A
	MAR/92							
	APR/92							

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

FIELD QUALITY CONTROL SAMPLING

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
DECON (MW-4 DUP)	FEB/92	20 *	62 *	120 *	60 *	2400 *	N/A
	MAR/92						
	APR/92						
RINSATE (RINSE) (BLANK)	FEB/92	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92						
	APR/92						

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 2/19/92 TIME: 1330

GASTECTOR MEASUREMENT: 0 ppm 0% LEL 19.6 O_2

DEPTH TO WATER: 9' 10½"

DEPTH TO BOTTOM: 20' 5½"

VOLUME OF WATER: 10' 7" (6.91 gallons)

PURGE VOLUME: 20.72 gallons (30 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 5"

DEPTH TO GW FROM GL: 8' 5½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 13:50:00 BAIL END TIME: 13:54:30

WELL CONDITION: Well dry after 12 full bails (8.4 gallons)

SAMPLE TIME: 14:09:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Cloudy (milky) color

OTHER: Water became cloudy (sandy) after 2ND bail.

Sample obtained for HGID analysis.

Sample appearance cloudy (Milky)

Thomas H. Sunday Jr

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 2/19/92 TIME: 1420

GASTECTOR MEASUREMENT: 0 ppm 0 % LEL 19.5 O_2

DEPTH TO WATER: 11' 0"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 8' 7" (5.60 gallons)

PURGE VOLUME: 16.8 gallons (24 bails)

VOLUME OF BAILER: .7 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 9' 2"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination

BAIL START TIME: 14:35:00 BAIL END TIME: 14:44:00

WELL CONDITION: Near dry after 20 bails

SAMPLE TIME: ~~1559~~ 1449 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Sample cloudy (slightly sandy) color

OTHER: Well became cloudy (sandy) after second bail

Bailed total of 27 bails. Extracting about 3/4 full bail after #20

Sample obtained for HCID analysis

Thomas H. Eunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: ~~+50~~ 2/19/92 TIME: 1505

GASTECTOR MEASUREMENT: 50 ppm 0%LEL 17.5 O_2

DEPTH TO WATER: 8' 7"

DEPTH TO BOTTOM: 17'9"

VOLUME OF WATER: 9' 2" (5.98 gallons)

PURGE VOLUME: 17.95 gallons (26 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9' 0"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Slightly cloudy (milky)

No evidence of petroleum contaminants.

BAIL START TIME: 15:20:00 BAIL END TIME: 15:27:30

WELL CONDITION: GOOD - Sandy color

SAMPLE TIME: 15:42:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Brown (sandy) color

OTHER: Well became cloudy (sandy) after 2ND bail

Sample obtained for HCID

Thomas H. Sunday, J.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-4

DATE: 2/19/92 TIME: 1545

GASTECTOR MEASUREMENT: 1060 ppm 10 % LEL 6.9 O_2

DEPTH TO WATER: 8'7"

DEPTH TO BOTTOM: 19'9½"

VOLUME OF WATER: 11'2½" (7.32 gallons)

PURGE VOLUME: 21.95 gallons (32 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9'0"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear. Slight sheen on surface - non-measureable. Smell of gasoline in bailer.

BAIL START TIME: 16:00:00 BAIL END TIME: 16:15:00

WELL CONDITION: Good Sandy color

SAMPLE TIME: 16:30:00 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly Sandy color, cloudy

OTHER: Well became cloudy (sandy) after 2ND bail. Distinct visible sheen and smell on purgewater bucket. Purgewater contained in drum on-site. Every 5 bails, allowed 1 min recharge while disposing of bucket contents to drum.
Sample obtained for 8015G+BTEX. Duplicate sample obtained and labled "decon". Reinsate sample also submitted from bailer rinse from all four wells combined.

Thomas H. Sunday Jr.

U.S. Environmental Protection Agency
Washington Operations Office

11/26/91

UST SITE VISIT CHECKLIST

Date 10/23/92	Time
Fac. ID ———	Contact ———
Owner Klickitat Co. Public Works	Fac. Name Glenwood - Klickitat Co. Shop
Address NW Corner of E. Main & Division	Location 205 South Columbia
Glenwood, WA	Goldendale, WA 98620
Phone (509-773-5512, Goldendale)	Phone

NOT. DATA

Tank #	1	2	3	4	5	6	7
Capacity							
Substance							
Status							
Installed							
Material-T							
Material-P							
RD-Tank							
RD-Pipe							
Cor. Prot.							
Spill							
Overfill							

NOT. CHGS

Tank #	1	2	3	4	5	6	7
Capacity	1,000	1,000					
Substance	D	G					
Status	P	P					
Installed							
Material-T							
Material-P							
RD-Tank							
RD-Pipe							
Cor. Prot.							
Spill							
Overfill							

Not. Com.: _____

SITE INFO Level ground – loam w/ glacial gravels. On main road corner.

– See video footage

RECORDS

ADD. COM: No one at facility. Observed well locations. Wells with air being pumped showed 0 pressure – pump not on.

SUMMARY: CK pump status w/ Tom Sunday

10/27 He will check on pump status and get samples soon.

Robert M. Little

Inspector

E.P. JOHNSON CONSTRUCTION, INC.
& ENVIRONMENTAL

RECEIVED
NOV 18 1992
EPA - WOO

November 13, 1992

Environmental Protection Agency
c/o Washington State Department of Ecology
Mail Stop PV-0117
Olympia, Wa. 98504-0117

Attention: Mr. Robert Cutler

Re: **Project Status for Microbial Ecology Approach and Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-2 through MW-4) were sampled November 7, 1992. Wells MW-2 and 3 were sampled and submitted for analysis by the WHCID method. Both wells were free of contamination. Well MW-1, upstream, was not sampled per previous agreement.

Well MW-4 had no visual or olfactory (sense of smell) indications of gasoline contamination observed during sample collection. The data tabulation table and field sampling logs have been updated and are enclosed for your review.

As previously discussed, the site favored an in-situ method of remediation. Given the sampling results of February and March 1992, there was an apparent reduction of contaminant concentrations with a stable water table. Since there was no apparent downstream migration of contaminants, one possible explanation is that indigenous microorganisms were consuming some of the contaminants.

Mr. Steve Nygaard, Project Manager for Klickitat County Public Works, approved the use of the Microbial Ecology Approach to accomplish remediation of the gasoline contamination at the Glenwood county shop location. In order to enhance the microbial environment, Alaska Fish Fertilizer, liquid form, was applied directly in wells MW-1, upstream, and MW-4 at the source of the contaminated area.

Acting with our advice to employ an air injection system, Steve had designed and installed an excellent device for injection of ambient air into the groundwater and subsurface soils in the zone of contamination. This injection system was installed in wells MW-1 and MW-4 in July. The attached sketch illustrates the system Steve had constructed.

RT. 7, BOX 430-B
KENNEWICK
WA 99337
(509) 735-2479
(509) 627-1336
FAX (509) 783-0331

GENERAL
CONTRACTOR
WASH. & OREGON
DBE
EPJOHCI*160MB
D1F0902636

Recycled paper

November 13, 1992

The focus of this design is to enhance the environmental conditions of the indigenous microorganisms to promote increased metabolic rates which in turn would increase their consumption of the petroleum contamination. Apparent proof of this concept is shown in the drastic reduction of contamination observed from the November 7, 1992 samples.

The injection system will remain operational until a second sampling of the wells indicate a successful remediation of the contamination. The schedule is to sample the wells again in the month of December. This sampling interval will include all 4 of the wells at the property.

Please review the attached sketch and table of analytical values. If you should have any questions, or require any additional information, please call me at (509) 735-2479.

Thank You,

E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

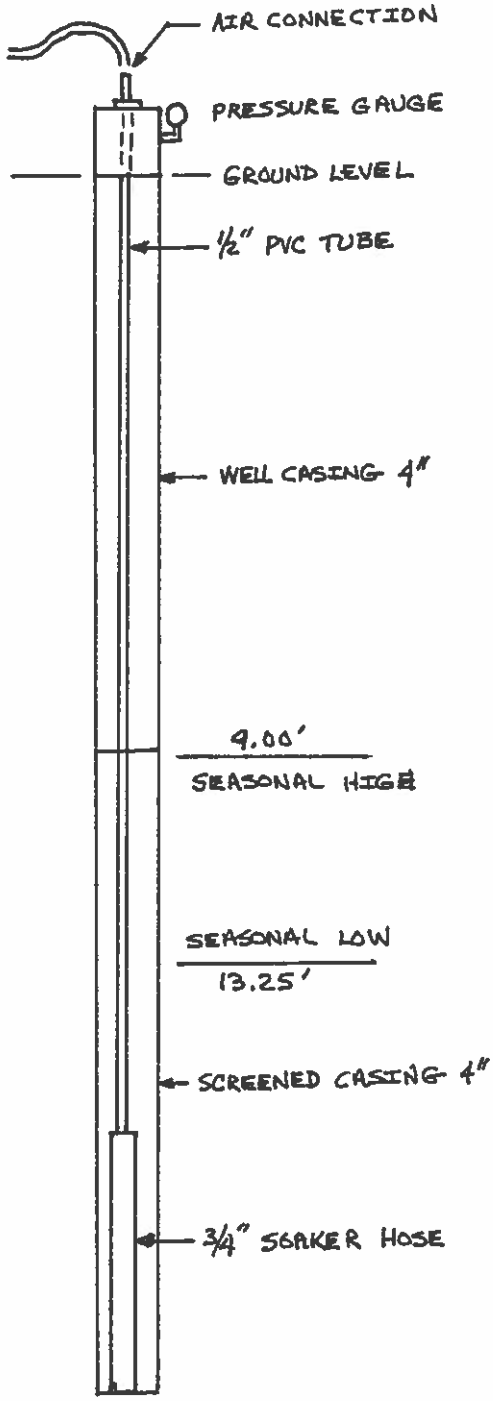
Thomas H. Sunday Jr.,
Registered State Site Assessor

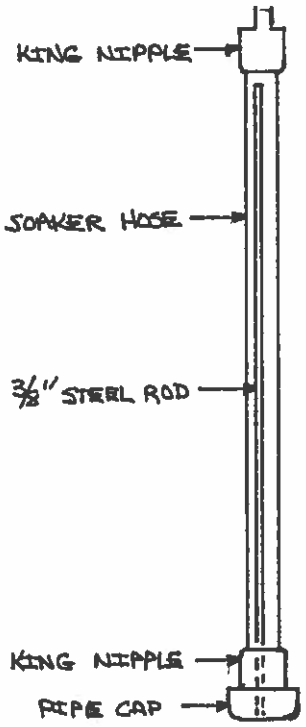
cc:	Steve Nygaard, Klickitat County	w/attachment
	Michael T. Black, P.E.	w/attachment
	E. Pauline Johnson, President	w/attachment
	Project File	

Recycled paper

SYSTEM DESIGN AND OPERATION

- 4" PVC CONNECTOR GLUED TO EXISTING WELL CASING.
- THREADED CAP DRILLED TO CONNECT AIR LINE TO 1/2" PVC TUBE.
- PRESSURE GAUGE TO MONITOR INTERNAL WELL ATMOSPHERE.
- 3/4" SOAKER HOSE TO DISPERSE AIR INJECTION INTO GROUNDWATER.
- 3/8" STEEL ROD TO MAINTAIN VERTICAL LENGTH OF HOSE AT APPROXIMATELY 4'.





SOAKER HOSE DETAIL

KLICKITAT COUNTY SHOP – GLENWOOD, WA.

DESIGN OF AIR INJECTION

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	DEPTH TO GW (FEET)	8015 TPH GAS ppm	(8020 SOIL, 602 WATER) BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	11.83	<1	<1	<1	<1	<1	N/A
	JAN/92	9.67	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	8.46	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	8.50	<.75	N/A	N/A	N/A	N/A	8015 MOD
MW-2	OCT/91	12.33	<1	<1	<1	<1	<1	N/A
	JAN/92	10.42	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.17	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.25	<.75	N/A	N/A	N/A	N/A	8015 MOD
	OCT/92	11.75	<.1	N/A	N/A	N/A	N/A	HCID
MW-3	OCT/91	12.25	<1	<1	<1	<1	<1	N/A
	JAN/92	10.33	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.00	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.21	<.75	N/A	N/A	N/A	N/A	8015 MOD
	OCT/92	12.25	<.1	N/A	N/A	N/A	N/A	HCID
MW-4	OCT/91	13.25	4 *	15 *	22	<1	58 *	N/A
	JAN/92	10.33	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92	9.00	30 *	63 *	160 *	64 *	2760 *	N/A
	MAR/92	9.17	13 *	99 *	130 *	<22	1300 *	N/A
	OCT/92	13.12	1	<1	<1	3	13	N/A

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

NOTE - WELL MW-1 NOT SAMPLED IN OCT 92 TO CONSERVE COSTS. SAMPLING SHALL BE DONE IN DECEM

FIELD QUALITY CONTROL SAMPLING

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
DECON (MW-4 DUP)	FEB/92	20 *	62 *	120 *	60 *	2400 *	N/A
	MAR/92	13 *	99 *	130 *	<22	1300 *	N/A
RINSATE (RINSE) (BLANK)	FEB/92	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	<.75	N/A	N/A	N/A	N/A	8015 MOD

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

NOTE - QA/QC SAMPLES NOT SUBMITTED IN OCT 92. SAMPLES FOR STATUS OF REMEDIAL ACTIVITY SAMPLES WILL BE DRAWN IN DECEMBER 92 TO VERIFY COMPLETE REMEDIAL ACTION.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 11/7/92 TIME: 1515

GASTECTOR MEASUREMENT: 50 ppm 19.8 % O_2

DEPTH TO WATER: 14' 7"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 3.26 GALLONS

PURGE VOLUME: 9.79 GALLONS (14 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 11' 9"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR

NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 1520 BAIL END TIME: 1525

WELL CONDITION: WELL DRY AFTER 10 BAILS (7 GALLONS)

SAMPLE TIME: 1540 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY BROWN)

NO EVIDENCE OF CONTAMINATION

OTHER:

SAMPLE DRAWN FOR WHCID ANALYSIS.

T. Sunday 11/7/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: 11/7/92 TIME: 1550

GASTECTOR MEASUREMENT: 60 ppm 19.2 % O_2

DEPTH TO WATER: 11' 10"

DEPTH TO BOTTOM: 17' 9½"

VOLUME OF WATER: 3.96 GALLONS

PURGE VOLUME: 11.67 GALLONS (17 BAILS)

VOLUME OF BAILER: .7 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 12' 3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR

NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 1555 BAIL END TIME: 1605

WELL CONDITION: GOOD - FULL 17 BAILS, WATER CLOUDY BROWN

SAMPLE TIME: 1620 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY BROWN - DARK)

NO EVIDENCE OF CONTAMINATION.

OTHER:

SAMPLE DRAWN FOR WHCID ANALYSIS

T. Sunday 11/7/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-4

DATE: 11/7/92 TIME: 1630

GASTECTOR MEASUREMENT: 250 ppm 18.6 % O_2

DEPTH TO WATER: 12' 8½"

DEPTH TO BOTTOM: 19' 6½"

VOLUME OF WATER: 4.46 GALLONS

PURGE VOLUME: 13.37 GALLONS (19 BAILS)

VOLUME OF BAILER: .7 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 13' 1½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR

NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 1645 BAIL END TIME: 1650

WELL CONDITION: NEAR EMPTY AFTER 5 GALLONS BAILED

SAMPLE TIME: 1705 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: MOSTLY CLEAR - SLIGHT MILKY SHADE

NO EVIDENCE OF CONTAMINATION.

OTHER: INJECTION SYSTEM NOT OPERATING - STEVE NYGAARD NOTIFIED. ONLY BAILED 5 GALLONS DUE TO CONTAINMENT PROBLEM (NO DRUM) PURGEWATER CONTAINED IN BUCKET W/LID. SAMPLE DRAWN FOR WTPHG + BTEX

T. Sunday 11/7/92

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (5

RECEIVED

JAN 27 1992

Eric Williams UST
USEPA, REGION 10
WATER DIVISION
OFFICE OF THE DEPUTY DIRECTOR
Add these to your
UST file on Glenwood
MAY 1 1992
RRC

January 23, 1992

Environmental Protection Agency
c/o Washington State Department o
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Mr. Robert Cutler

Re: **Monthly Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-1 through MW-4) were sampled January 16, 1992. Wells MW-1, 2, and 3 were sampled and submitted for HCID analysis. All three wells were clean. Well MW-4 had visual, and olfactory (sense of smell) indications of gasoline contamination observed during sample collection. A table has been formulated to track the well sampling results from these four wells. A form has also been generated to document field information related to the well sampling. This information shall be updated and sent to you after the laboratory sampling results are known from each monthly interval.

As you can see, based on the laboratory data table and the field notes, there appears to be a discrepancy between the initial October analyses and the January data. Several conjectures are possible to account for this change. However conclusive information cannot be attained without further sampling and analyses over time.

If you should have any questions, or require additional information, please call me at (509) 735-2479.

Sincerely,
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered State Site Assessor

cc: Mr. Steve Nygaard, Klickitat County w/attachment
Project File

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O) BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	<1	<1	<1	<1	<1	N/A
	JAN/92	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92						
	MAR/92						
	APR/92						
MW-2	OCT/91	<1	<1	<1	<1	<1	N/A
	JAN/92	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92						
	MAR/92						
	APR/92						
MW-3	OCT/91	<1	<1	<1	<1	<1	N/A
	JAN/92	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92						
	MAR/92						
	APR/92						
MW-4	OCT/91	4 *	15 *	22	<1	58 *	N/A
	JAN/92	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92						
	MAR/92						
	APR/92						

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 10/17/91 TIME: 1530

GASTECTOR MEASUREMENT: 90 ppm Ø% LEL 21.2 O_2

DEPTH TO WATER: 13'2"

DEPTH TO BOTTOM: 20'6"

VOLUME OF WATER: 7'4" (4.78 GALLONS)

PURGE VOLUME: 14 GALLONS (21 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1'5"

DEPTH TO GW FROM GL: 11'10"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 1605 BAIL END TIME: 1608

WELL CONDITION: WELL DRY AFTER 6 1/2 BAILS REMOVED

SAMPLE TIME: 1630 RECHARGE TIME: 22 MINUTES

SAMPLE APPEARANCE: SLIGHTLY CLOUDY

OTHER: SAMPLE OBTAINED FOR METHOD 8015 - TPH GAS + BTEX DISTINCTION.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 10/17/91 TIME: 1550

GASTECTOR MEASUREMENT: 90 ppm 0% LEL 21.6 O_2

DEPTH TO WATER: 14' 2"

DEPTH TO BOTTOM: 19' 8"

VOLUME OF WATER: 5' 6" (3.59 GALLONS)

PURGE VOLUME: 11 GALLONS (15 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 12' 4"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 1605 BAIL END TIME: 1609

WELL CONDITION: WELL DRY AFTER 7 1/2 BAILS REMOVED

SAMPLE TIME: 1610 RECHARGE TIME: 7 MINUTES

SAMPLE APPEARANCE: SLIGHTLY SANDY COLORED

OTHER: SAMPLE OBTAINED FOR METHOD 8015 - TPH GAS + BTEX DISTINCTION.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: 10/17/91 TIME: 1645

GASTECTOR MEASUREMENT: 130 ppm 0% LEL 21.8 O_2

DEPTH TO WATER: 11'10"

DEPTH TO BOTTOM: 17'10"

VOLUME OF WATER: 6'0" (3.92 GALLONS)

PURGE VOLUME: 12 GALLONS (17 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 12'3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 1654 BAIL END TIME: 1702

WELL CONDITION: WATER IN WELL - BUT CLOSE TO BOTTOM

SAMPLE TIME: 1705 RECHARGE TIME: 3 MINUTES

SAMPLE APPEARANCE: SOMEWHAT SANDY COLORED

OTHER: SAMPLE OBTAINED FOR METHOD 8015 - TPH GAS + BTEX DISTINCTION.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-4

DATE: 10/17/91 TIME: 1720

GASTECTOR MEASUREMENT: 1990 ppm 23% LEL 3.8 O_2

DEPTH TO WATER: 12'10"

DEPTH TO BOTTOM: 19'10"

VOLUME OF WATER: 7'0" (4.56 GALLONS)

PURGE VOLUME: 14 GALLONS (20 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 13'3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - Visible sheen on surface - gasoline. No measureable free product.

BAIL START TIME: 1737 BAIL END TIME: 1745

WELL CONDITION: Well empty after 13 bails removed.

SAMPLE TIME: 1810 RECHARGE TIME: 25 MINUTES

SAMPLE APPEARANCE: Slight sandy color - gasoline sheen on water surface

OTHER: Purgewater was contained in a 55 gallon drum on-site. Sample obtained for method 8015 - TPH Gas + BTEX.

Thomas H. Sunday J.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 1/16/92 TIME: 1215

GASTECTOR MEASUREMENT: Ø ppm Ø %LEL 19.9 O_2

DEPTH TO WATER: 11' 1"

DEPTH TO BOTTOM: 20' 5"

VOLUME OF WATER: 9' 4" (6.09 GALLONS)

PURGE VOLUME: 18 GALLONS (25 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 5"

DEPTH TO GW FROM GL: 9' 8"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 12:44:00 BAIL END TIME: 12:46:30

WELL CONDITION: WELL DRY AFTER 10 FULL BAILS

SAMPLE TIME: 13:01:30 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLEAR TO SLIGHTLY CLOUDY (MILKY)

OTHER: SAMPLE OBTAINED FOR HCID ANALYSIS.

Thomas H. Sunday J.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 1/16/92 TIME: 1315

GASTECTOR MEASUREMENT: 10 ppm Ø % LEL 19.9 O_2

DEPTH TO WATER: 12' 3"

DEPTH TO BOTTOM: 19' 9"

VOLUME OF WATER: 7' 6" (4.89 GALLONS)

PURGE VOLUME: 15 GALLONS (21 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 11"

DEPTH TO GW FROM GL: 10' 4"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 13:22:00 BAIL END TIME: 13:27:30

WELL CONDITION: WELL DRY AFTER 15 FULL BAILS

SAMPLE TIME: 13:42:30 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY)

OTHER: SAMPLE OBTAINED FOR HCID ANALYSES

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: 1/16/92 TIME: 1400

GASTECTOR MEASUREMENT: 50 ppm Ø % LEL 15.2 O_2

DEPTH TO WATER: 9'11"

DEPTH TO BOTTOM: 17'10"

VOLUME OF WATER: 7'11" (5.16 GALLONS)

PURGE VOLUME: 15 GALLONS (22 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: + 4½"

DEPTH TO GW FROM GL: 10' 3½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 14:10:00 BAIL END TIME: 14:16:00

WELL CONDITION: OK COMPLETED BAILING 22 BAILS.

SAMPLE TIME: 14:31:00 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY)

OTHER: SAMPLE OBTAINED FOR HCID ANALYSIS

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-4

DATE: 1/16/92 TIME: 1445

GASTECTOR MEASUREMENT: 780 ppm 7% LEL 5.7 O_2

DEPTH TO WATER: 9' 11"

DEPTH TO BOTTOM: 19' 10"

VOLUME OF WATER: 9' 11" (6.47 GALLONS)

PURGE VOLUME: 19 GALLONS

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: + 4"

DEPTH TO GW FROM GL: 10' 3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - VISIBLE GASOLINE SHEEN ON SURFACE. NO MEASUREABLE FREE PRODUCT. OLFACTORY INDICATION OF GASOLINE.

BAIL START TIME: 14:56:00 BAIL END TIME: 15:10:00

WELL CONDITION: GOOD - CLOSE TO DRY ~ 1' WATER LEVEL

SAMPLE TIME: 15:25:00 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLEAR - SLIGHTLY MILKY. GASOLINE SHEEN ON WATER SURFACE.

OTHER: PURGEWATER CONTAINED IN DRUM ON SITE. DRUM NOW FULL. A 5 GALLON BUCKET WAS USED TO CONTAIN WATER AT WELL HEAD. APPROXIMATELY A 1:30 DELAY IN BAILING AFTER EACH 4 BAILS.

SAMPLE OBTAINED FOR 8015G + BTEX ANALYSES.

Thomas H. Sunsley Jr.

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

RECEIVED
APR 06 1992
EPA - WOO

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-0331

April 3, 1992

Environmental Protection Agency
c/o Washington State Department of Ecology
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Mr. Robert Cutler

Re: **Monthly Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-1 through MW-4) were sampled March 26, 1992. Wells MW-1, 2, and 3 were sampled and submitted for Total Petroleum Fuel Hydrocarbon analysis (an equivalent method to WHCID in soils). All three wells were clean. Well MW-4 had visual, and olfactory (sense of smell) indications of gasoline contamination observed during sample collection. The data tabulation table and field sampling logs have been updated and are enclosed for your review.

The data indicate a decrease in gasoline TPH as well as Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). The data further indicate a relatively stable groundwater elevation as compared to the previous months information.

From our recent conversations, it is understood that approval has been granted to extend the previously scheduled remediation, April 1992, until such time that the groundwater elevation declines to or near the levels measured in the October 1991 sampling. It is also understood that continued sampling is required if the remediation is extended. The customer however, does reserve the right to proceed or extend the current remediation schedule.

We are currently evaluating some new technologies available for the in-situ treatment of petroleum contaminated groundwater and saturated soils using a Microbial Ecology Approach (MEA). The physical site favors in-situ treatment due to its small size and apparent <u>low</u> hydraulic conductivity of the contaminated soils. Using an in-situ approach, if effective, would be cost effective to the customer and provide no secondary wastes for treatment and/or disposal off-site.

I expect to notify your office within two weeks of the date of this letter, of the remedial action selected, description of the technology to be applied, and the schedule for initiation and expected completion. If you should have any questions, or require additional information, please call me at (509) 735-2479.

Sincerely,
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered State Site Assessor

cc: Mr. Steve Nygaard, Klickitat County w/attachment
Project File

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	DEPTH TO GW (FEET)	8015 TPH GAS ppm	BENZENE ppb	TOLUENE ppb	(8020 SOIL, 602 WATER) ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	11.83	<1	<1	<1	<1	<1	N/A
	JAN/92	9.67	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	8.46	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	8.50	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92							
MW-2	OCT/91	12.33	<1	<1	<1	<1	<1	N/A
	JAN/92	10.42	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.17	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.25	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92							
MW-3	OCT/91	12.25	<1	<1	<1	<1	<1	N/A
	JAN/92	10.33	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.00	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.21	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92							
MW-4	OCT/91	13.25	4 *	15 *	22	<1	58 *	N/A
	JAN/92	10.33	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92	9.00	30 *	63 *	160 *	64 *	2760 *	N/A
	MAR/92	9.17	13 *	99 *	130 *	<22	1300 *	N/A
	APR/92							

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

FIELD QUALITY CONTROL SAMPLING

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
DECON (MW-4 DUP)	FEB/92	20 *	62 *	120 *	60 *	2400 *	N/A
	MAR/92	13 *	99 *	130 *	<22	1300 *	N/A
	APR/92						
RINSATE (RINSE) (BLANK)	FEB/92	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	<.75	N/A	N/A	N/A	N/A	8015 MOD
	APR/92						

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-1

DATE: 3/26/92 TIME: 1030

GASTECTOR MEASUREMENT: 0 ppm 0 % LEL 20.9 O_2

DEPTH TO WATER: 9' 11"

DEPTH TO BOTTOM: 20' 5"

VOLUME OF WATER: 8' 6" (5.55 gallons)

PURGE VOLUME: 16.65 galons (24 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 5"

DEPTH TO GW FROM GL: 8' 6"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination.

BAIL START TIME: 10:40:00 BAIL END TIME: 10:44:30

WELL CONDITION: Well dry after 12 full bails

SAMPLE TIME: 10:59 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly cloudy - milky. No evidence of contamination

OTHER: Water had sandy color after 2ND bail. Extremely muddy near bottom - dark brown color.

Sample obtained for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-2

DATE: 3/26/92 TIME: 1105

GASTECTOR MEASUREMENT: 0ppm 0% LEL 20.7 O_2

DEPTH TO WATER: 11' 1"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 8' 6" (5.55 gallons)

PURGE VOLUME: 16.65 gallons (24 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 9' 3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination

BAIL START TIME: 11:16:00 BAIL END TIME: 11:22

WELL CONDITION: 25 full bails - water dark brown - muddy

SAMPLE TIME: 11:37 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly cloudy - Sandy. No evidence of contamination.

OTHER: Water turned cloudy - sandy after 2ND bail. Water extra muddy near bottom of well.

Sample obtained for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-3

DATE: 3/26/92 TIME: 11:45

GASTECTOR MEASUREMENT: 50ppm 0 % LEL 18.8 O_2

DEPTH TO WATER: 8' 9½"

DEPTH TO BOTTOM: 17' 6½"

VOLUME OF WATER: 8' 9" (5.71 gallons)

PURGE VOLUME: 17.13 gallons (25 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9' 2½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination.

BAIL START TIME: 11:58 BAIL END TIME: 12:04

WELL CONDITION: 26 full bails dark brown water - muddy

SAMPLE TIME: 12:19 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Sample dark brown - muddy. No evidence of contamination

OTHER: Water turned cloudy after 2nd bail. Dark brown color near bottom - muddy

Sample obtained for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-4

DATE: 3/26/92 TIME: 1245

GASTECTOR MEASUREMENT: 940 ppm 08 % LEL 19.3 O_2

DEPTH TO WATER: 8' 9"

DEPTH TO BOTTOM: 19' 8"

VOLUME OF WATER: 10' 11" (7.13 gallons)

PURGE VOLUME: 21.38 gallons (31 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: + 5"

DEPTH TO GW FROM GL: 9' 2"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No visible sheen - slight smell of gasoline

BAIL START TIME: 13:00 BAIL END TIME: 13:17

WELL CONDITION: 32 full bails

SAMPLE TIME: 13:32 ~~13:00~~ RECHARGE TIME: 15 minutes ~~13:17~~

SAMPLE APPEARANCE: Clear - very slight sheen and smell of gasoline.

OTHER: Water became cloudy - sandy after 3rd bail. Water dark brown with clearly visible sheen and smell of gasoline.

Sample obtained for 8015G + BTEX.
Duplicate taken for 8015G + BTEX
Rinsate sample for HCID

Thomas H. Sunday Jr.
3/26/92

Harold Scott
UST recieved 3-27-93
WD-133

4/15/93 - informed Steve Nygaard, Klickitat Co. - Glenwood site appears to satisfy EPA requirements - Closure letter to follow. [illegible]

HS
3/26

SITE ASSESSMENT
FINAL REPORT

for

GROUNDWATER REMEDIATION

KLICKITAT COUNTY PUBLIC WORKS
GLENWOOD, WASHINGTON

Prepared for:

Mr. Steve Nygaard, Project Manager
Klickitat County Public Works
205 S. Columbia Ave.
Goldendale, Washington 98620

Prepared by:

Thomas H. Sunday Jr.
E.P. Johnson Construction, Inc. & Environmental
1320 N. Oregon St.
Pasco, Washington 99301

3/93 ?

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose.....1
1.2 Scope of Work.....1
1.3 Limitations.....1

2.0 INVESTIGATION

2.1 Background.....2
2.2 Contamination Assessment.....3
2.3 Remedial Actions.....3

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions.....5
3.2 Recommendations.....5

APPENDIX A - MAPS AND SKETCHES

APPENDIX B - FIELD MEASUREMENT LOGS

APPENDIX C - ANALYTICAL RESULTS

1.0 INTRODUCTION

1.1 Purpose:

This report describes the findings to date, actions taken, and the current status of petroleum contaminated groundwater associated with a site assessment performed after the decommissioning of underground storage tanks for the Klickitat County Public Works in Glenwood, Washington. The geographical location is described as the SW 1/4, of the SE 1/4, of section 10, T 6 N, R 12 E.

The data and documentation contained herein are in accordance with regulatory requirements set forth by the United States Environmental Protection Agency (EPA) and the State of Washington, Department of Ecology (DOE).

Preservation of this report is required for 5 years. We recommend that you keep the report for at least 5 years or until the property is sold.

1.2 Scope of Work:

The Klickitat County Public Works Department contracted E.P. Johnson Construction, Inc. & Environmental to provide continued services for the assessment and remediation of petroleum contaminated groundwater at their facility in Glenwood, Washington. This contract provides the basis for this report.

1.3 Limitations:

This report is a continuation to the Site Assessment report issued in November, 1991 for Underground Storage Tank (UST) decommissioning within the subject property. This report does not recognize nor address other possible areas, if any, of contamination within or surrounding the subject property.

2.0 INVESTIGATION

2.1 Background:

The initial site assessment was performed following the decommissioning of underground storage tanks at the subject property. Two tanks were removed; a 1,000 gallon diesel, and a 1,000 gallon unleaded gasoline.

Soils contaminated with gasoline were initially discovered beneath the fuel pump island. Approximately 90 cubic yards of contaminated soil were removed and disposed of at the Roosevelt Regional Landfill. An apparent water table was found at 13' from the surface.

Based on informal interviews and topographic data, sufficient information was obtained to suggest that the general flow direction of groundwater is to the south, southeast from the subject property. Tacoma Pump and Drill, a state licensed well drilling firm, was contracted to install and develop four monitoring wells for the purpose of establishing flow direction and potential plume characterization.

The four wells are of the same design and drilled to a depth of 20' below grade. The wells are constructed of a 4" schedule 40 PVC with a 10' screen perforated at 20 slots per inch. A silica sand pack surrounds the well screen interval and bentonite pellets were used to provide the surface seal. Security casings and protective guardposts were also installed. Sketch 1 in appendix A shows the locations of the wells with respect to the subject property.

2.2 Contamination Assessment:

The wells were initially sampled in October, 1991. Subsequent sampling intervals later occurred in January, February, March, and October of 1992. The final sampling was performed in January of 1993. Table 1 in appendix C displays the sampling intervals, depth to groundwater, and contaminant concentrations.

Initially the concentrations in MW-4 were steadily increasing along with the consistent rise in the water table elevation. This can be attributed to "washing" of contaminated soils. None of the perimeter wells detected any migration of the gasoline contamination found in MW-4. However, once a stable water elevation was achieved between sampling intervals, a reduction of nearly 50% in contaminant concentrations was observed. Since there was no detected downstream migration of contaminants, a possible cause could have been consumption of the petroleum contamination by indigenous microorganisms.

2.3 Remedial Actions:

Mr. Steve Nygaard, Project Manager for Klickitat County Public Works, approved the use of the Microbial Ecology Approach to accomplish remediation of the gasoline contamination at the Glenwood county shop location. In order to enhance the microbial environment, Alaska Fish Fertilizer, liquid form, was applied directly in wells MW-1, upstream, and MW-4 at the source of the contaminated area.

Acting with our advice to employ an air injection system, Mr. Nygaard had designed and installed an excellent device for injection of ambient air into the groundwater and subsurface soils. This injection system was installed in wells MW-1 and MW-4 in July, 1992. Sketch 2 in appendix A represents the components of the air injection system.

The focus of this design is to enhance the environmental conditions of the indigenous microorganisms to promote increased metabolic rates which in turn would increase their consumption of the petroleum contamination. Apparent proof of this concept is shown in the drastic reduction of contamination observed from the November, 1992 samples. The wells were sampled again in January, 1993 to confirm the remediation efforts. The perimeter wells were again non-detectable. Although MW-4 did indicate traces of gasoline products, the observed concentrations are well within the established cleanup limits.

The final sampling of wells MW-1 and MW-4 revealed a suspicious result of diesel range hydrocarbons from the HCID analytical method. However, neither of the sample chromatograms matched a typical diesel pattern and prior analyses using the same method revealed no diesel range hydrocarbons. Coincidentally, these are the same wells utilized for the "fish fertilizer" injection. It is suspected that this phantom diesel range hydrocarbon may be related to the breakdown of the fertilizer material.

A sample of the fertilizer was sent to the laboratory for comparison to the original samples in March of 1993. The chromatograms are attached in appendix C for review. The pattern observed from the "fresh" fish oil sample strongly resembles the original sample chromatograms of monitoring wells MW-1 and MW-4 after six months of in-situ exposure.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions:

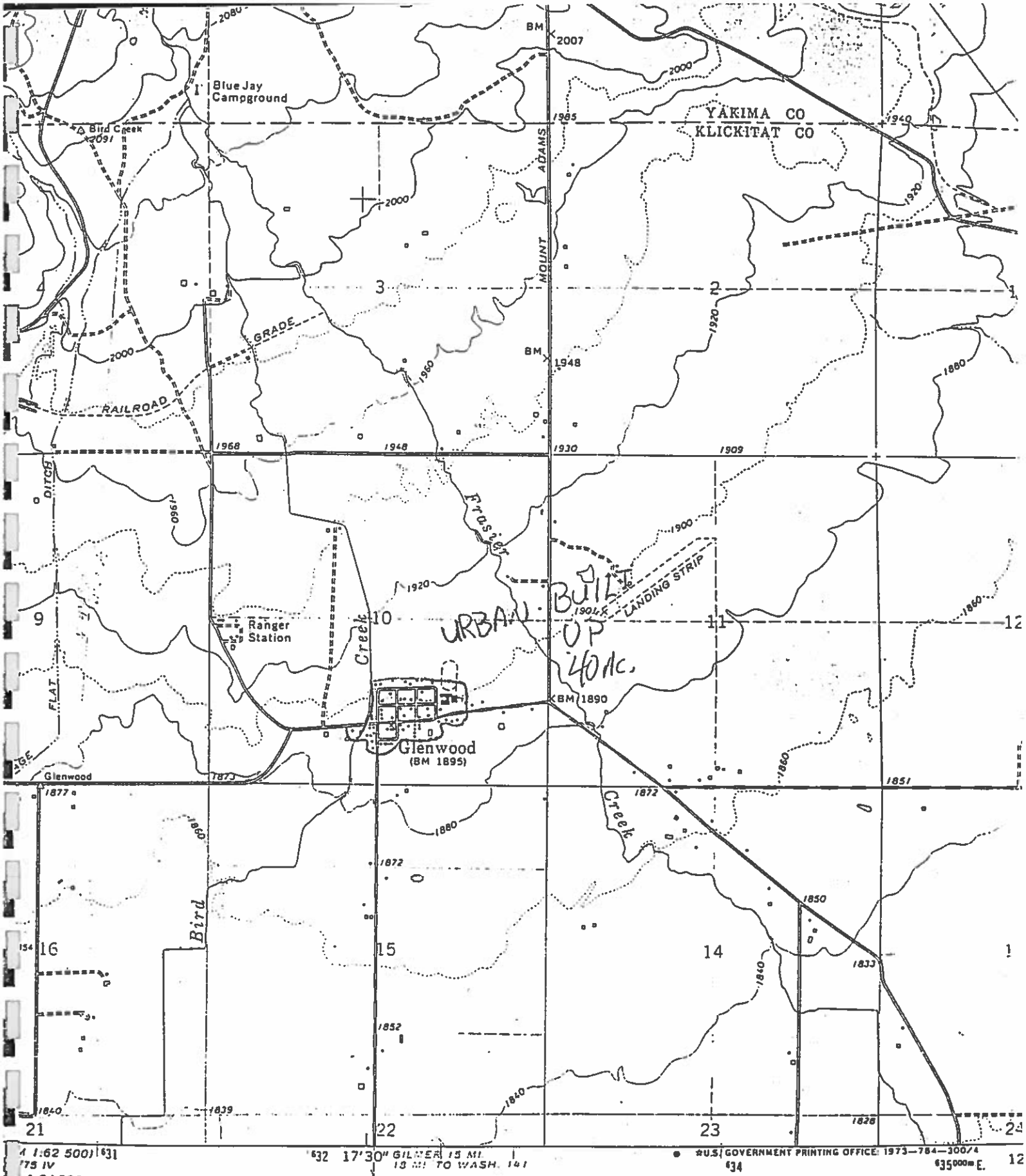
The target of this remedial action was to reduce gasoline contamination in groundwater to acceptable levels. With two consecutive sampling intervals displaying concentrations well beneath established cleanup levels, it is apparent that the target objective has been achieved.

3.2 Recommendations:

The wells shall be abandoned at the discretion of the Klickitat County personnel. No further remedial actions or monitoring are recommended for this site.

APPENDIX A

MAPS AND SKETCHES



1:24000

0 1 MILE

3000 4000 5000 6000 7000 FEET

0 1 KILOMETER

NTERVAL 40 FEET
SENT 20-FOOT CONTOURS
EAN SEA LEVEL

MAP-2
GLENWOOD

WASHINGTON

ROAD CLASSIFICATION

Primary highway, hard surface

Light-duty road, hard or improved surface

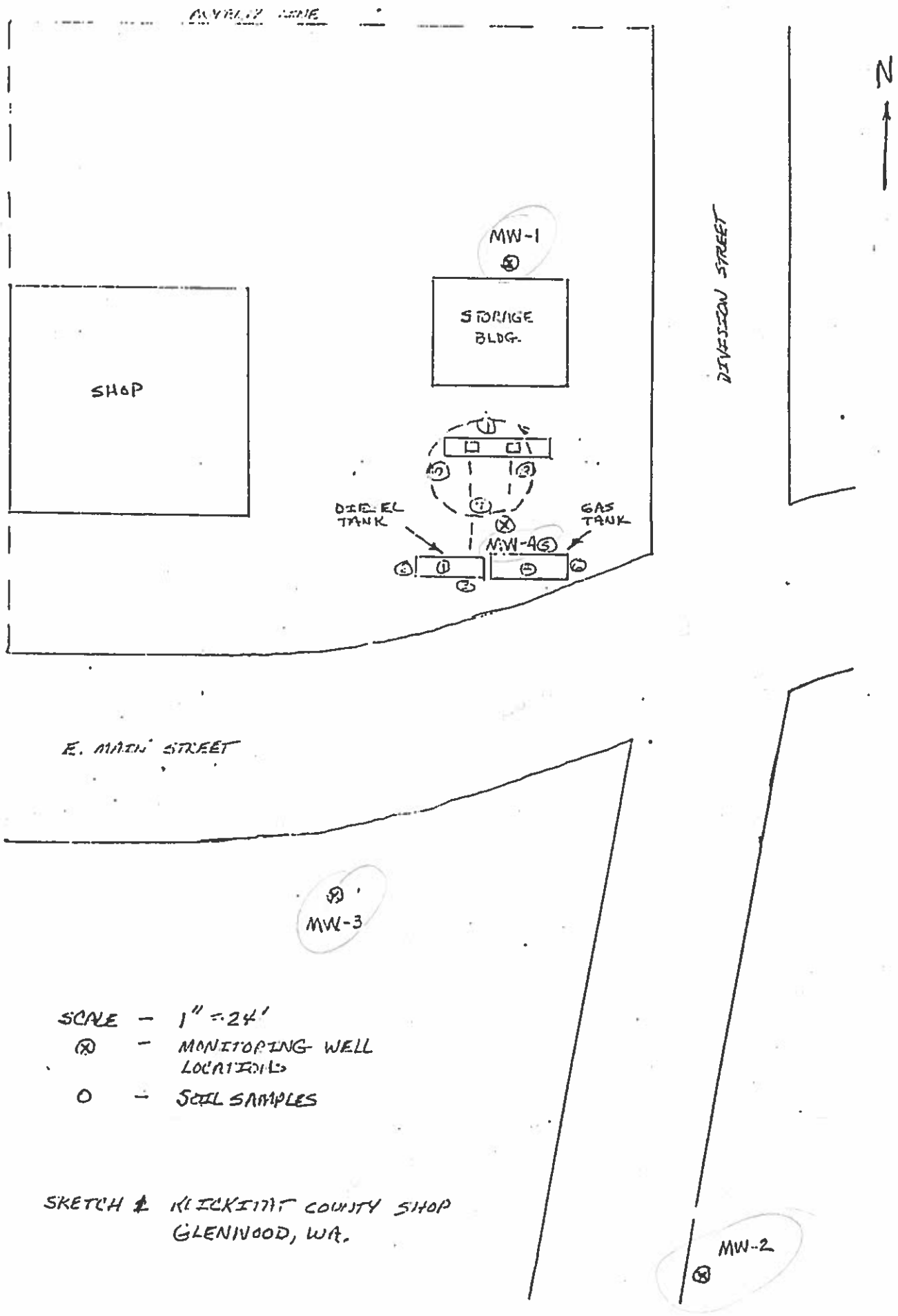
Secondary highway, hard surface

Unimproved road

Interstate Route

U. S. Route

State Route



SCALE – 1" = 24'

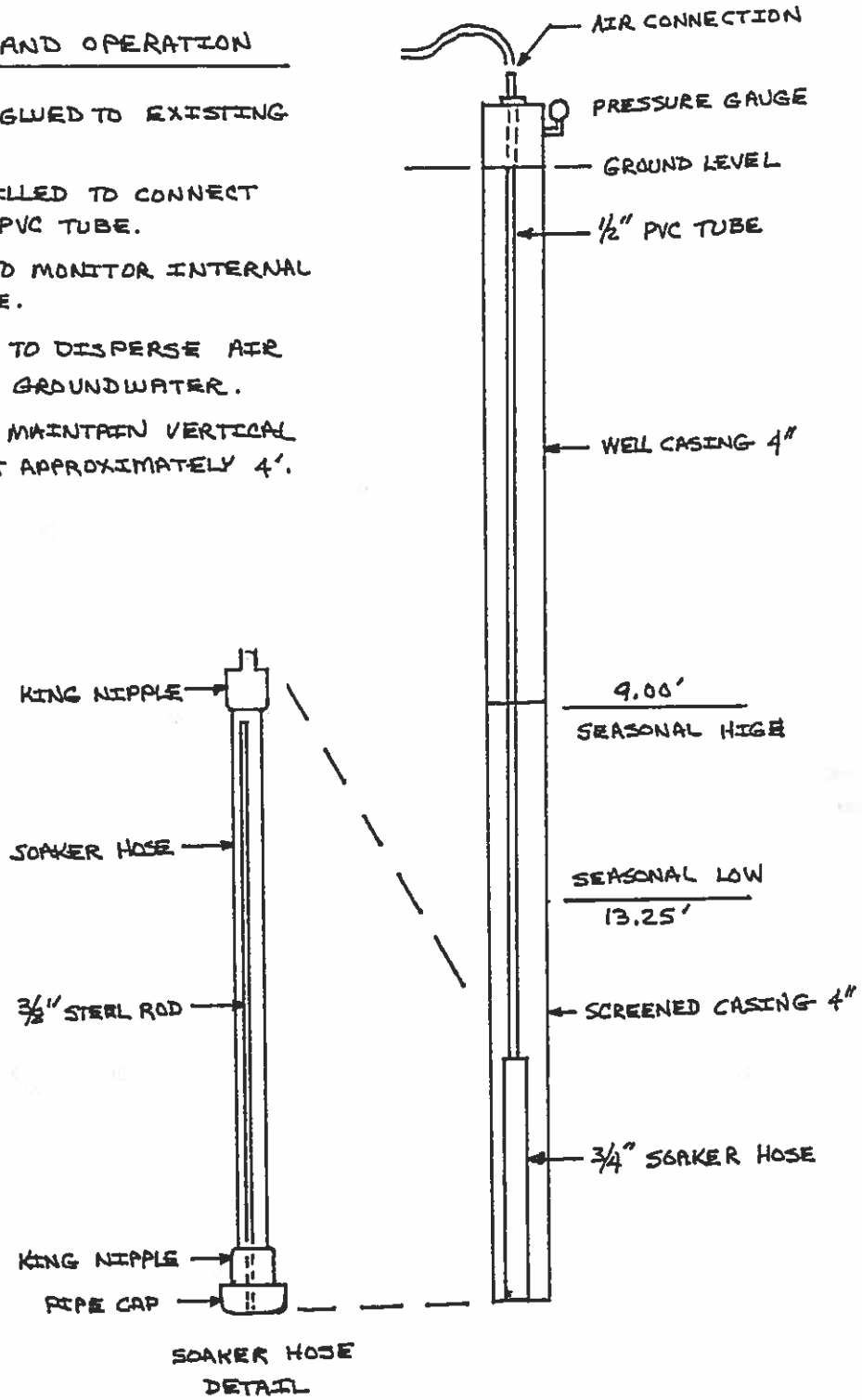
⊗ – MONITORING WELL LOCATIONS

O – SOIL SAMPLES

SKETCH 1 KLICKITAT COUNTY SHOP
GLENWOOD, WA.

SYSTEM DESIGN AND OPERATION

- 4" PVC CONNECTOR GLUED TO EXISTING WELL CASING.
- THREADED CAP DRILLED TO CONNECT AIR LINE TO 1/2" PVC TUBE.
- PRESSURE GAUGE TO MONITOR INTERNAL WELL ATMOSPHERE.
- 3/4" SOAKER HOSE TO DISPERSE AIR INJECTION INTO GROUNDWATER.
- 3/8" STEEL ROD TO MAINTAIN VERTICAL LENGTH OF HOSE AT APPROXIMATELY 4'.



KLICKITAT COUNTY SHOP - GLENWOOD, WA.

DESIGN OF AIR INJECTION

SKETCH 2

APPENDIX B

FIELD MEASUREMENT LOGS

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 10/17/91 TIME: 1530

GASTECTOR MEASUREMENT: 90 ppm Ø% LEL 21.2 O_2

DEPTH TO WATER: 13'2"

DEPTH TO BOTTOM: 20'6"

VOLUME OF WATER: 7'4" (4.78 GALLONS)

PURGE VOLUME: 14 GALLONS (21 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1'5"

DEPTH TO GW FROM GL: 11'10"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 1605 BAIL END TIME: 1608

WELL CONDITION: WELL DRY AFTER 6 1/2 BAILS REMOVED

SAMPLE TIME: 1630 RECHARGE TIME: 22 MINUTES

SAMPLE APPEARANCE: SLIGHTLY CLOUDY

OTHER: SAMPLE OBTAINED FOR METHOD 8015 - TPH GAS + BTEX DISTINCTION.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 10/17/91 TIME: 1550

GASTECTOR MEASUREMENT: 90 ppm 0% LEL 21.6 O_2

DEPTH TO WATER: 14' 2"

DEPTH TO BOTTOM: 19' 8"

VOLUME OF WATER: 5' 6" (3.59 GALLONS)

PURGE VOLUME: 11 GALLONS (15 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 12' 4"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 1605 BAIL END TIME: 1609

WELL CONDITION: WELL DRY AFTER 7 1/2 BAILS REMOVED

SAMPLE TIME: 1610 RECHARGE TIME: 7 MINUTES

SAMPLE APPEARANCE: SLIGHTLY SANDY COLORED

OTHER: SAMPLE OBTAINED FOR METHOD 8015 - TPH GAS + BTEX DISTINCTION.

Thomas H. Sunday J.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: 10/17/91 TIME: 1645

GASTECTOR MEASUREMENT: 130 ppm 0% LEL 21.8 O_2

DEPTH TO WATER: 11'10"

DEPTH TO BOTTOM: 17'10"

VOLUME OF WATER: 6'0" (3.92 GALLONS)

PURGE VOLUME: 12 GALLONS (17 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 12'3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 1654 BAIL END TIME: 1702

WELL CONDITION: WATER IN WELL - BUT CLOSE TO BOTTOM

SAMPLE TIME: 1705 RECHARGE TIME: 3 MINUTES

SAMPLE APPEARANCE: SOMEWHAT SANDY COLORED

OTHER: SAMPLE OBTAINED FOR METHOD 8015 - TPH GAS + BTEX DISTINCTION.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-4

DATE: 10/17/91 TIME: 1720

GASTECTOR MEASUREMENT: 1990 ppm 23% LEL 3.8 O_2

DEPTH TO WATER: 12'10"

DEPTH TO BOTTOM: 19'10"

VOLUME OF WATER: 7'0" (4.56 GALLONS)

PURGE VOLUME: 14 GALLONS (20 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 13'3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - Visible sheen on surface - gasoline. No measureable free product.

BAIL START TIME: 1737 BAIL END TIME: 1745

WELL CONDITION: Well empty after 13 bails removed.

SAMPLE TIME: 1810 RECHARGE TIME: 25 MINUTES

SAMPLE APPEARANCE: Slight sandy color - gasoline sheen on water surface

OTHER: Purgewater was contained in a 55 gallon drum on-site. Sample obtained for method 8015 - TPH Gas + BTEX.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 1/16/92 TIME: 1215

GASTECTOR MEASUREMENT: Ø ppm Ø %LEL 19.9 O_2

DEPTH TO WATER: 11' 1"

DEPTH TO BOTTOM: 20' 5"

VOLUME OF WATER: 9' 4" (6.09 GALLONS)

PURGE VOLUME: 18 GALLONS (25 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 5"

DEPTH TO GW FROM GL: 9' 8"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 12:44:00 BAIL END TIME: 12:46:30

WELL CONDITION: WELL DRY AFTER 10 FULL BAILS

SAMPLE TIME: 13:01:30 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLEAR TO SLIGHTLY CLOUDY (MILKY)

OTHER: SAMPLE OBTAINED FOR HCID ANALYSIS.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 1/16/92 TIME: 1315

GASTECTOR MEASUREMENT: 10 ppm Ø % LEL 19.9 O_2

DEPTH TO WATER: 12' 3"

DEPTH TO BOTTOM: 19' 9"

VOLUME OF WATER: 7' 6" (4.89 GALLONS)

PURGE VOLUME: 15 GALLONS (21 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: ~~10' 8"~~ 10' 5"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 13:22:00 BAIL END TIME: 13:27:30

WELL CONDITION: WELL DRY AFTER 15 FULL BAILS

SAMPLE TIME: 13:42:30 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY)

OTHER: SAMPLE OBTAINED FOR HCID ANALYSES

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: 1/16/92 TIME: 1400

GASTECTOR MEASUREMENT: 50 ppm Ø % LEL 15.2 O_2

DEPTH TO WATER: 9'11"

DEPTH TO BOTTOM: 17'10"

VOLUME OF WATER: 7'11" (5.16 GALLONS)

PURGE VOLUME: 15 GALLONS (22 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: TS ~~+ 4 1/2"~~ +5"

DEPTH TO GW FROM GL: TS ~~10' 3 1/2"~~ 10' 4"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 14:10:00 BAIL END TIME: 14:16:00

WELL CONDITION: OK COMPLETED BAILING 22 BAILS.

SAMPLE TIME: 14:31:00 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY)

OTHER: SAMPLE OBTAINED FOR HCID ANALYSIS

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-4

DATE: 1/16/92 TIME: 1445

GASTECTOR MEASUREMENT: 780 ppm 7% LEL 5.7 O_2

DEPTH TO WATER: 9' 11"

DEPTH TO BOTTOM: 19' 10"

VOLUME OF WATER: 9' 11" (6.47 GALLONS)

PURGE VOLUME: 19 GALLONS

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: THS ~~+ 6"~~ +5"

DEPTH TO GW FROM GL: THS ~~10' 4"~~ 10' 4"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - VISIBLE GASOLINE SHEEN ON SURFACE. NO MEASUREABLE FREE PRODUCT. OLFACTORY INDICATION OF GASOLINE.

BAIL START TIME: 14:56:00 BAIL END TIME: 15:10:00

WELL CONDITION: GOOD - CLOSE TO DRY ~ 1' WATER LEVEL

SAMPLE TIME: 15:25:00 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLEAR - SLIGHTLY MILKY. GASOLINE SHEEN ON WATER SURFACE.

OTHER: PURGEWATER CONTAINED IN DRUM ON SITE. DRUM NOW FULL. A 5 GALLON BUCKET WAS USED TO CONTAIN WATER AT WELL HEAD. APPROXIMATELY A 1:30 DELAY IN BAILING AFTER EACH 4 BAILS.

SAMPLE OBTAINED FOR 8015G + BTEX ANALYSES.

Thomas H. Sunsley Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 2/19/92 TIME: 1330

GASTECTOR MEASUREMENT: 0 ppm 0% LEL 19.6 O_2

DEPTH TO WATER: 9' 10½"

DEPTH TO BOTTOM: 20' 5½"

VOLUME OF WATER: 10' 7" (6.91 gallons)

PURGE VOLUME: 20.72 gallons (30 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1'5"

DEPTH TO GW FROM GL: 8'5½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 13:50:00 BAIL END TIME: 13:54:30

WELL CONDITION: Well dry after 12 full bails (8.4 gallons)

SAMPLE TIME: 14:09:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Cloudy (milky) color

OTHER: Water became cloudy (sandy) after 2ND bail.

Sample obtained for HCID analysis.

Sample appearance cloudy (Milky)

Thomas H. Sunday Jr

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: ~~+50~~ 2/19/92 TIME: 1505

GASTECTOR MEASUREMENT: 50 ppm 0%LEL 17.5 O_2

DEPTH TO WATER: 8' 7"

DEPTH TO BOTTOM: 17' 9"

VOLUME OF WATER: 9' 2" (5.98 gallons)

PURGE VOLUME: 17.95 gallons (26 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9' 0"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Slightly cloudy (milky)

No evidence of petroleum contaminants.

BAIL START TIME: 15:20:00 BAIL END TIME: 15:27:30

WELL CONDITION: GOOD - Sandy color

SAMPLE TIME: 15:42:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Brown (sandy) color

OTHER: Well became cloudy (sandy) after 2ND bail

Sample obtained for HCID

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-4

DATE: 2/19/92 TIME: 1545

GASTECTOR MEASUREMENT: 1060 ppm 10 % LEL 6.9 O_2

DEPTH TO WATER: 8'7"

DEPTH TO BOTTOM: 19'9½"

VOLUME OF WATER: 11'2½" (7.32 gallons)

PURGE VOLUME: 21.95 gallons (32 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9'0"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear. Slight sheen on surface - non-measureable. Smell of gasoline in bailer.

BAIL START TIME: 16:00:00 BAIL END TIME: 16:15:00

WELL CONDITION: Good Sandy color

SAMPLE TIME: 16:30:00 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly Sandy color, cloudy

OTHER: Well became cloudy (sandy) after 2ND bail. Distinct visible sheen and smell on purgewater bucket. Purgewater contained in drum on-site. Every 5 bails, allowed 1 min recharge while disposing of bucket contents to drum.
Sample obtained for 8015G + BTEX. Duplicate sample obtained and labled "decon". Reinsate sample also submitted from bailer rinse from all four wells combined.

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-1

DATE: 3/26/92 TIME: 1030

GASTECTOR MEASUREMENT: 0 ppm 0 % LEL 20.9 O_2

DEPTH TO WATER: 9' 11"

DEPTH TO BOTTOM: 20' 5"

VOLUME OF WATER: 8' 6" (5.55 gallons)

PURGE VOLUME: 16.65 galons (24 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 5"

DEPTH TO GW FROM GL: 8' 6"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination.

BAIL START TIME: 10:40:00 BAIL END TIME: 10:44:30

WELL CONDITION: Well dry after 12 full bails

SAMPLE TIME: 10:59 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly cloudy - milky. No evidence of contamination

OTHER: Water had sandy color after 2ND bail. Extremely muddy near bottom - dark brown color.

Sample obtained for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-2

DATE: 3/26/92 TIME: 1105

GASTECTOR MEASUREMENT: 0ppm 0 % LEL 20.7 O_2

DEPTH TO WATER: 11' 1"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 8' 6" (5.55 gallons)

PURGE VOLUME: 16.65 gallons (24 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 9' 3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination

BAIL START TIME: 11:16:00 BAIL END TIME: 11:22

WELL CONDITION: 25 full bails - water dark brown - muddy

SAMPLE TIME: 11:37 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly cloudy - Sandy. No evidence of contamination.

OTHER: Water turned cloudy - sandy after 2ND bail. Water extra muddy near bottom of well.

Sample obtained for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-3

DATE: 3/26/92 TIME: 11:45

GASTECTOR MEASUREMENT: 50ppm 0 % LEL 18.8 O_2

DEPTH TO WATER: 8' 9½"

DEPTH TO BOTTOM: 17' 6½"

VOLUME OF WATER: 8' 9" (5.71 gallons)

PURGE VOLUME: 17.13 gallons (25 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9' 2½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination.

BAIL START TIME: 11:58 BAIL END TIME: 12:04

WELL CONDITION: 26 full bails dark brown water - muddy

SAMPLE TIME: 12:19 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Sample dark brown - muddy. No evidence of contamination

OTHER: Water turned cloudy after 2nd bail. Dark brown color near bottom - muddy

Sample obtained for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-4

DATE: 3/26/92 TIME: 1245

GASTECTOR MEASUREMENT: 940 ppm 08 % LEL 19.3 O_2

DEPTH TO WATER: 8' 9"

DEPTH TO BOTTOM: 19' 8"

VOLUME OF WATER: 10' 11" (7.13 gallons)

PURGE VOLUME: 21.38 gallons (31 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9' 2"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No visible sheen - slight smell of gasoline

BAIL START TIME: 13:00 BAIL END TIME: 13:17

WELL CONDITION: 32 full bails

SAMPLE TIME: 13:32 ~~13:00~~ RECHARGE TIME: 15 minutes ~~13:17~~

SAMPLE APPEARANCE: Clear - very slight sheen and smell of gasoline.

OTHER: Water became cloudy - sandy after 3rd bail
Water dark brown with clearly visible sheen and smell of gasoline.

Sample obtained for 8015G+BTEX.
Duplicate taken for 8015G+BTEX
Rinsate sample for HCID

Thomas H. Sunday Jr.
3/26/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 11/7/92 TIME: 1515

GASTECTOR MEASUREMENT: 50 ppm 19.8 % O_2

DEPTH TO WATER: 14' 7"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 3.26 GALLONS

PURGE VOLUME: 9.79 GALLONS (14 BAILS)

VOLUME OF BAILER: .70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 11' 9"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR

NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 1520 BAIL END TIME: 1525

WELL CONDITION: WELL DRY AFTER 10 BAILS (7 GALLONS)

SAMPLE TIME: 1540 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY BROWN)

NO EVIDENCE OF CONTAMINATION

OTHER:

SAMPLE DRAWN FOR WHCID ANALYSIS.

T. Sunday 11/7/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: 11/7/92 TIME: 1550

GASTECTOR MEASUREMENT: 60 ppm 19.2 % O_2

DEPTH TO WATER: 11' 10"

DEPTH TO BOTTOM: 17' 9½"

VOLUME OF WATER: 3.96 GALLONS

PURGE VOLUME: 11.67 GALLONS (17 BAILS)

VOLUME OF BAILER: .7 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 12' 3"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR

NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 1555 BAIL END TIME: 1605

WELL CONDITION: GOOD - FULL 17 BAILS, WATER CLOUDY BROWN

SAMPLE TIME: 1620 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: CLOUDY (SANDY BROWN - DARK)

NO EVIDENCE OF CONTAMINATION.

OTHER:

SAMPLE DRAWN FOR WHCID ANALYSIS

T. Sunday 11/7/92

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-4

DATE: 11/7/92 TIME: 1630

GASTECTOR MEASUREMENT: 250 ppm 18.6 % O_2

DEPTH TO WATER: 12' 8½"

DEPTH TO BOTTOM: 19' 6½"

VOLUME OF WATER: 4.46 GALLONS

PURGE VOLUME: 13.37 GALLONS (19 BAILS)

VOLUME OF BAILER: .7 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 13' 1½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR

NO EVIDENCE OF CONTAMINATION.

BAIL START TIME: 1645 BAIL END TIME: 1650

WELL CONDITION: NEAR EMPTY AFTER 5 GALLONS BAILED

SAMPLE TIME: 1705 RECHARGE TIME: 15 MINUTES

SAMPLE APPEARANCE: MOSTLY CLEAR - SLIGHT MILKY SHADE

NO EVIDENCE OF CONTAMINATION.

OTHER: INJECTION SYSTEM NOT OPERATING - STEVE NYGAARD NOTIFIED. ONLY BAILED 5 GALLONS DUE TO CONTAINMENT PROBLEM (NO DRUM) PURGEWATER CONTAINED IN BUCKET W/LID. SAMPLE DRAWN FOR WTPHG + BTEX

T. Sunday 11/7/92

E.P. JOHNSON CONSTRUCTION, INC. & ENVIRONMENTAL

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 1/27/93 TIME: 1045

GASTECTOR MEASUREMENT: 0 ppm 20.9% O_2 0%LEL

DEPTH TO WATER: 13' 2"

DEPTH TO BOTTOM: 21' 0"

VOLUME OF WATER: 7' 10" 5.32 GALLONS

PURGE VOLUME: 15.95 GALLONS (23 Bails)

VOLUME OF BAILER: 0.70 GALLONS

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 5"

DEPTH TO GW FROM GL: 11' 9"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: clear - No evidence of contamination

BAIL START TIME: 11:10 BAIL END TIME: 11:15

WELL CONDITION: almost dry after 9 full bails roughly 3" water in well. Muddy brown

SAMPLE TIME: 11:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Clear - No evidence of contamination. Well still recharging

OTHER: Sample drawn for WHCID method Backup samples taken for TPHG-BTEX - if needed.

Thomas H. Sunday Jr.

RT. 7, BOX 430-B
ENNEWICK
WA 99337
(509) 735-2479
(509) 627-1336
AX (509) 783-0331

GENERAL
CONTRACTOR
WASH. & OREGON
DBE
EPJOHCI*160MB
IF0902636

Recycled paper

E.P. JOHNSON CONSTRUCTION, INC. & ENVIRONMENTAL

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 1/27/93 TIME: 1145

GASTECTOR MEASUREMENT: 60ppm 20.4% O_2 0% LEL

DEPTH TO WATER: 13' 6"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 6' 1" 4.12 Gallons

PURGE VOLUME: 12.38 gallons (18 bails)

VOLUME OF BAILER: 0.70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 11' 8"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination.

BAIL START TIME: 1200 BAIL END TIME: 1207

WELL CONDITION: Full 18 bails obtained. Water Muddy Brown after 5th bail.

SAMPLE TIME: 1222 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Mostly clear - slightly brown. No evidence of contamination. Well completely recharged prior to sampling.

OTHER: Sample obtained for WHCID. Backup samples also obtained for WTPHG/BTEX if needed

Thomas H. Sunday Jr.

T 7, BOX 430-B
NNEWICK
VA 99337
509) 735-2479
09) 627-1336
X (509) 783-0331

ENERAL
NTRACTOR
ASH. & OREGON
BE
PJOHCI*160MB
F0902636

Recycled paper

E.P. JOHNSON CONSTRUCTION, INC. & ENVIRONMENTAL

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-3

DATE: 1/27/93 TIME: 1240

GASTECTOR MEASUREMENT: 90ppm 17.0% O_2 2%LEL

DEPTH TO WATER: 10' 11"

DEPTH TO BOTTOM: 17' 10"

VOLUME OF WATER: 6' 11" 4.70 gallons

PURGE VOLUME: 14.1 gallons (20 bails)

VOLUME OF BAILER: 0.70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 11' 4"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination

BAIL START TIME: 1250 BAIL END TIME: 1257

WELL CONDITION: Full 20 bails obtained. Water muddy brown

SAMPLE TIME: 1312 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Muddy brown - No evidence of contamination. Well completely recharged prior to sampling.

OTHER: Sample obtained for WHCID. Backup samples also taken for WTPHG/BTEX if needed

Thomas H. Sunday J.

PT. 7, BOX 430-B
ENNEWICK
WA 99337
(509) 735-2479
09) 627-1336
AX (509) 783-0331

GENERAL
ONTRACTOR
ASH. & OREGON
DBE
EPJOHCI*160MB
1F0902636

Recycled paper

APPENDIX C
ANALYTICAL RESULTS

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	DEPTH TO GW (FEET)	8015 TPH GAS ppm	(8020 SOIL, 602 WATER) BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	11.83	<1	<1	<1	<1	<1	N/A
	JAN/92	9.67	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	8.46	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	8.50	<.75	N/A	N/A	N/A	N/A	8015 MOD
	JAN/93	11.75	<.2	N/A	N/A	N/A	N/A	HCID
MW-2	OCT/91	12.33	<1	<1	<1	<1	<1	N/A
	JAN/92	10.42	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.17	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.25	<.75	N/A	N/A	N/A	N/A	8015 MOD
	OCT/92	11.75	<.1	N/A	N/A	N/A	N/A	HCID
	JAN/93	11.66	<.2	N/A	N/A	N/A	N/A	HCID
MW-3	OCT/91	12.25	<1	<1	<1	<1	<1	N/A
	JAN/92	10.33	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.00	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	9.21	<.75	N/A	N/A	N/A	N/A	8015 MOD
	OCT/92	12.25	<.1	N/A	N/A	N/A	N/A	HCID
	JAN/93	11.33	<.2	N/A	N/A	N/A	N/A	HCID
MW-4	OCT/91	13.25	4 *	15 *	22	<1	58 *	N/A
	JAN/92	10.33	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92	9.00	30 *	63 *	160 *	64 *	2760 *	N/A
	MAR/92	9.17	13 *	99 *	130 *	<22	1300 *	N/A
	OCT/92	13.12	1	<1 OK	<1	3 OK	13 OK	N/A
	JAN/93	11.83	<.3	<1	1.1 OK	<1 OK	<1	N/A

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

NOTE - WELL MW-1 NOT SAMPLED IN OCT 92 TO CONSERVE COSTS. SAMPLING SHALL BE DONE IN JANUARY

FIELD QUALITY CONTROL SAMPLING

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
DECON (MW-4 DUP)	FEB/92	20 *	62 *	120 *	60 *	2400 *	N/A
	MAR/92	13 *	99 *	130 *	<22	1300 *	N/A
RINSATE (RINSE) (BLANK)	FEB/92	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92	<.75	N/A	N/A	N/A	N/A	8015 MOD
	JAN/93	<.2	N/A	N/A	N/A	N/A	HCID

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

NOTE - QA/QC SAMPLES NOT SUBMITTED IN OCT 92. SAMPLES FOR STATUS OF REMEDIAL ACTIVITY SAMPLES WILL BE DRAWN IN JANUARY 93 TO VERIFY COMPLETE REMEDIAL ACTION.

Date of Report: November 1, 1991
Samples Submitted: October 21, 1991
Matrix: Soil
Lab Traveler: 10-080
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Results reported as ppb

Sample #:	GWELL-1	GWELL-2	MW-3	MW-4
Dilution Factor	1	1	1	1
Analyte:				
Benzene	<1	<1	<1	15
Toluene	<1	<1	<1	22
Ethylbenzene	<1	<1	<1	<1
m- & p-Xylene	<1	<1	<1	30
o-Xylene	<1	<1	<1	28
Gas Units Reported as ppm				
TPH/Gas	<1	<1	<1	4
Surr. Recovery	95%	88%	83%	89%

Date of Report: November 1, 1991
Samples Submitted: October 21, 1991
Matrix: Soil
Lab Traveler: 10-080
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL

Reported as ppb

Batch Sample #:	Method Blank	10-076-1 Original	10-076-1 Duplicate
Dil.Fact.	1	1	1
Analyte:			
Benzene	<1	240	240
Toluene	<1	490	490
Ethylbenzene	<1	580	590
m- & p-Xylene	<1	2,000	2,000
o-Xylene	<1	800	800
Gas Units Reported as ppm			
TPH/Gas	<1	25	26
Surr. Recovery	97%	82%	92%

Matrix Spike data not required due to high sample concentration.

10-000

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
GWELL-1	North well	1 l amber glass	10/17	1630				X		8015G+BTEX	L
GWELL-2	Southeast well	"	10/17	1610				X		8015G+BTEX	L
MW -3	South west well	"	10/17	1705				X		8015G+BTEX	L
MW -4	Source well	"	10/17	1810				X		8015G+BTEX	H *

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Sample MW-4 High concentration gasoline expected!

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas W. Sunday Jr. 10/18/91 1745
Received by: [illegible]

2. Relinquished by: [illegible]
Received by: Pony Express # 3943296

3. Relinquished by: [illegible]
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY: Tammy C. Howard
NUMBER OF SAMPLES: 4 DATE/TIME: 10-21-91 8:50A

Date of Report: February 4, 1992
Samples Submitted: January 17, 1992
Lab Traveler: 01-043
Project: Klickitat County

Matrix: Water

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
MW-1	<0.5 ppm Gasoline <0.5 ppm Diesel <1.0 ppm Oil	75%
MW-2	<0.5 ppm Gasoline <0.5 ppm Diesel <1.0 ppm Oil	59%
MW-3	<0.5 ppm Gasoline <0.5 ppm Diesel <1.0 ppm Oil	71%
Method Blank	<0.5 ppm Gasoline <0.5 ppm Diesel <1.0 ppm Oil	58%

Date of Report: February 4, 1992
Samples Submitted: January 17, 1992
Lab Traveler: 01-043
Project: Klickitat County

Matrix: Water
Units: ppb

ANALYSIS BY EPA 8020 & WTPH-G
(PURGE & TRAP)

Sample #:	MW-4
Dilution Factor	50
Analyte:	
Benzene	120[N]
Toluene	250
Ethylbenzene	33[V]
m- & p-Xylene	710
o-Xylene	260
Gas Units: ppm	
TPH/Gas	16[V]
Surr. Recovery	88%

N-Data from 1:10 dilution.

V-Data from 1:1 dilution.

Date of Report: February 4, 1992
Samples Submitted: January 17, 1992
Lab Traveler: 01-043
Project: Klickitat County

Matrix: Water
Units: ppb

ANALYSIS BY EPA 8020 & WTPH-G
(PURGE & TRAP)

QUALITY CONTROL

Batch Sample #:	Method Blank	01-037-14 Original	01-037-14 Duplicate	01-037-14 Matrix Spike @ 20 ppb	01-037-14 M Spike. Duplicate
Dil.Fact.	1	1	1		
Analyte:					
Benzene	<1	<1	<1	92%	93%
Toluene	<1	2[J]	2[J]	81%	80%
Ethylbenzene	<1	<1	<1	59%[A]	55%[A]
m- & p-Xylene	<1	<1	<1	22%[A]	18%[A]
o-Xylene	<1	8	8	94%	97%
Gas Units: ppm					
TPH/Gas	<0.5	<0.5	<0.5	---	---
Surr. Recovery	96%	93%	92%	93%	93%

A-Matrix Spike recovery data out of control due to matrix effects.

J-The value indicated was below the practical quantitation limit.

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Thomas H. Sunday J.

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
MW-1	Glenwood	1 l amber glass	1/16	1301				X		HCID	L
MW-2	"	"	1/16	1342				X		HCID	L
MW-3	"	"	1/16	1431				X		HCID	L
MW-4	Glenwood	40ml VOA	1/16	1525				X		8015G+BTEX	H
MW-4	"	"	1/16	1525				X		8015G+BTEX	H

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: None

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday J. 1/16/92 1835
   Received by:
2. Relinquished by: Edith Hartee
   Received by:
3. Relinquished by: Edith Hartee
   Received by: Pony Express # 4825529
4. Relinquished by:
   Received by:
5. Relinquished by:
   Received by:
6. LABORATORY RECIEPT BY:
   NUMBER OF SAMPLES: DATE/TIME:

Date of Report: February 28, 1992
Samples Submitted: February 21, 1992
Lab Traveler: 02-061
Project: Klickitat Co.

Matrix: Water
Units: ug/L (ppb)
Date Extracted: February 21, 1992
Date Analyzed: February 21, 1992

EPA 8020 & WTPH-G
(PURGE & TRAP)

Sample #:	MW-4	Decon
Dilution Factor	10	10
Analyte:		
Benzene	63	62
Toluene	160	120
Ethylbenzene	64	60
m,p-Xylene	1900[N]	1600[N]
o-Xylene	860	800
TPH-Gas Units: mg/L (ppm)	30	20
4-Bromofluorobenzene Surrogate Recovery	91%	92%

N-Data from 1:500 dilution.

Date of Report: February 28, 1992
Samples Submitted: February 21, 1992
Lab Traveler: 02-061
Project: Klickitat Co.

Matrix: Water
Units: ug/L (ppb)
Date Extracted: February 21, 1992
Date Analyzed: February 21, 1992

EPA 8020 & WTPH-G
(PURGE & TRAP)

QUALITY CONTROL

Sample #: 02-060-4	Method Blank	Original	Duplicate	RPD
Dilution Factor	1	1	1	
Analyte:				
Benzene	<1	<1	<1	0%
Toluene	<1	<1	<1	0%
Ethylbenzene	<1	<1	<1	0%
m,p-Xylene	<1	<1	<1	0%
o-Xylene	<1	<1	<1	0%
TPH-Gas Units: mg/L (ppm)	<.5	<.5	<.5	0%
4-Bromofluorobenzene Surrogate Recovery	96%	91%	94%	

Date of Report: February 28, 1992
Samples Submitted: February 21, 1992
Lab Traveler: 02-061
Project: Klickitat Co.

Matrix: Water
Units: ug/L (ppb)
Date Extracted: February 21, 1992
Date Analyzed: February 21, 1992

EPA 8020 & WTPH-G
(PURGE & TRAP)

MATRIX SPIKE QUALITY CONTROL

Sample #: 02-060-4
Spiked @ 20 ppb

	M.S. Conc.	Percent Recovery	M.S. Dup. Conc.	Percent Recovery	RPD
Dilution Factor	1		1		
Analyte:					
Benzene		94%		97%	3.0%
Toluene		93%		96%	3.0%
Ethylbenzene		94%		97%	3.0%
m,p-Xylene		94%		97%	3.0%
o-Xylene		96%		97%	1.0%
4-Bromofluorobenzene Surrogate Recovery		99%		96%	

Date of Report: February 28, 1992
Samples Submitted: February 21, 1992
Lab Traveler: 02-061
Project: Klickitat Co.

Matrix: Water
Date Extracted: February 26, 1992
Date Analyzed: February 26, 1992

WTPH-HCID

Sample #	GC Characterization	o-terphenyl Surrogate Recovery
MW-1	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	98%
MW-2	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	108%
MW-3	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	75%
Rinsate	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	65%

QUALITY ASSURANCE

Method Blank	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	99%

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

APR 1992 RECEIVED

Report To: E.P. Johnson Construction Date: April 1, 1992

Report On: Analysis of Water Lab No.: 23463

IDENTIFICATION:
Samples received on 3-27-92.
Project: Klickitat Co.

ANALYSIS:

Samples were analyzed for Total Petroleum Fuel Hydrocarbons by EPA SW-846 Modified Method 8015.

Lab Sample No.	Client ID	Total Petroleum Fuel Hydrocarbons, mg/l
1	MW-1	< 0.75
2	MW-2	< 0.75
3	MW-3	< 0.75
4	Rinsate	< 0.75

SURROGATE RECOVERY, %

Lab Sample No.	1	2	3	4
1-Chlorooctane	140	129	128	144
Perylene	109	108	114	113

Continued . . .

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

E.P. Johnson Construction
Project: Klickitat Co.

Lab No. 23463
April 1, 1992

Lab Sample No.	5	6
Client ID	MW-4	Waste
Units	mg/l	mg/l
WTPH-G		
Gasoline (C7-C12)	13	13
BTEX by 8020		
Benzene	0.099	0.099
Toluene	0.13	0.13
Ethyl Benzene	< 0.022	< 0.022
Xylenes	1.3	1.3
SURROGATE RECOVERY%		
Trifluorotoluene	92	84

SOUND ANALYTICAL SERVICES

MARTY FRENCH

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

Client: E.P. Johnson Construction
Project: Klickitat Co.
Client ID: Rinsate
Lab No: 23463
Matrix: Water
Units: mg/l
Date: April 1, 1992

DUPLICATE

Lab No: 23463-4 Client ID: Rinsate

Parameter	Sample(S)	Duplicate(D)	RPD
Total Petroleum Fuel Hydrocarbons	< 0.75	< 0.75	0.0
SURROGATE RECOVERY%			
1-Chlorooctane	144	141	
Perylene	113	116	

RPD = relative percent difference
= [(S - D) / ((S + D) / 2)] x 100

METHOD BLANKS

PARAMETER	BLANK VALUE
WTPH-G	< 0.1
BTEX by 8080	
Benzene	< 0.001
Toluene	0.009
Ethyl Benzene	< 0.001
Xylenes	< 0.001
SURROGATE RECOVERY%	
Trifluorotoluene	97

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

ANALYTICAL NARRATIVE

Client: E.P. Johnson Construction Date: April 1, 1992

Project: Klickitat Co. Lab No.: 23463

Delivered by: Pony Express

Date Sampled: 3-26-92

Condition of Samples upon Receipt:

Samples were received cold and in good condition. Chain-of-custody was in order.

EXTRACTION AND ANALYSIS DATES

Samples 23463-5 & -6 were analyzed for BTEX in accordance with EPA SW-846 Method 8020. Samples were prepared and analyzed on 3-31-92.

Samples 23463-5 & -6 were analyzed for gasoline range hydrocarbons per WA State DOE method WTPH-G. Samples were prepared and analyzed on 3-31-92.

Samples 23463-1 through -4 were analyzed for total petroleum fuel hydrocarbons in accordance with EPA SW-846 Modified Method 8015. Samples were extracted on 3-27-92 and analyzed 3-31-92.

All Quality Control was within acceptable limits.

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: SOUND ANALYTICAL SERVICES, INC.
ADDRESS: 4813 PACIFIC HWY EAST, TACOMA WA 98424
TELEPHONE: (206) 922-2310
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Thomas H. Sunday Jr.

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
MW-1	Well-1	1l amb. glass	3/26	1059				X		HCID	L
MW-2	Well-2	"	3/26	1137				X		HCID	L
MW-3	Well-3	"	3/26	1219				X		HCID	L
MW-4	Well-4	2 40ml VOA	3/26	1332				X		8015G+BTEX	H
MW-4	Well-4	"	3/26	1332				X		8015G+BTEX	H
Waste	Waste drum	"	3/26	1340				X		8015G+BTEX	H
Waste	Waste drum	"	3/26	1340				X		8015G+BTEX	H
Rinsate	Final Rinse	1l amb. glass	3/26	1345				X		HCID	L

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 3/26/92
   Received by:
2. Relinquished by: Winnie Epping Horne
   Received by:
3. Relinquished by:
   Received by:
4. Relinquished by: Pony Express # No Bill
   Received by:
5. Relinquished by:
   Received by:
6. LABORATORY RECIEPT BY: Mary Cutter
   NUMBER OF SAMPLES: DATE/TIME: 3/27/92 9:10

EPJ.005 Rev.0

Date of Report: November 13, 1992
Samples Submitted: November 10, 1992
Lab Traveler: 11-012
Project: Klickitat County

Matrix: Water
Date Extracted: November 10, 1992
Date Analyzed: November 10, 1992

TPH-HCID

Sample #	GC Characterization	o-terphenyl Surrogate Recovery
MW-2	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	96%
MW-3	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	93%
Rinse	Gasoline range hydrocarbons	79%

QUALITY ASSURANCE

Method Blank	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	93%

Date of Report: November 13, 1992
Samples Submitted: November 10, 1992
Lab Traveler: 11-012
Project: Klickitat County

Matrix: Water
Units: ug/L (ppb)
Date Extracted: November 11, 1992
Date Analyzed: November 11, 1992

EPA 8020 & WTPH-G
(PURGE & TRAP)

Sample #:	MW-4
Dilution Factor	1
Analyte:	
Benzene	<1
Toluene	<1
Ethylbenzene	3
m,p-Xylene	7
o-Xylene	6
TPH-Gas Units: mg/L (ppm)	1
4-Bromofluorobenzene Surrogate Recovery	100%

Date of Report: November 13, 1992
Samples Submitted: November 10, 1992
Lab Traveler: 11-012
Project: Klickitat County

Matrix: Water
Units: ug/L (ppb)
Date Extracted: November 11, 1992
Date Analyzed: November 11, 1992

EPA 8020 & WTPH-G
(PURGE & TRAP)

QUALITY CONTROL

Sample #: MW-4

	Method Blank	Original	Duplicate	RPD
Dilution Factor	1	1	1	
Analyte:				
Benzene	<1	<1	<1	0%
Toluene	<1	<1	<1	0%
Ethylbenzene	<1	3	1	93%
m,p-Xylene	<1	7	6	17%
o-Xylene	<1	6	3	60%
TPH-Gas Units: mg/L (ppm)	<.3	1	.3[J]	120%
4-Bromofluorobenzene Surrogate Recovery	93%	100%	100%	

J-The value indicated was below the practical quantitation limit. The value is an estimate.

Date of Report: November 13, 1992
Samples Submitted: November 10, 1992
Lab Traveler: 11-012
Project: Klickitat County

Matrix: Water
Units: ug/L (ppb)
Date Extracted: November 11, 1992
Date Analyzed: November 11, 1992

EPA 8020 & WTPH-G
(PURGE & TRAP)

MATRIX SPIKE QUALITY CONTROL

Sample #: MW-4
Spiked @ 20 ppb

	M.S. Conc.	Percent Recovery	M.S. Dup. Conc.	Percent Recovery	RPD
Dilution Factor	1		1		
Analyte:					
Benzene	17.6	88%	17.5	87%	.57%
Toluene	18.4	92%	18.2	91%	1.1%
Ethylbenzene	18.7	83%	18.4	81%	1.6%
m,p-Xylene	39.0	82%	38.5	81%	1.3%
o-Xylene	20.4	80%	20.7	81%	1.5%
4-Bromofluorobenzene Surrogate Recovery	98%		94%		

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ON-SITE ENVIRONMENTAL
ADDRESS: 2859 152ND. AVE N.E. REDMOND, WA 98052
TELEPHONE: (206) 883-3881
CONTACT: TAMMY HOWARD

SAMPLES TAKEN BY: Thomas H. Sunday Jr.

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
MW-2 (2)	Well 2	1 l glass	11/7					X		WHCID	L
MW-3 (2)	Well 3	1 l glass	11/7					X		WHCID	L
MW-4 (3)	Well 4	~~1 l glass~~ 40 ml VOA	11/7					X		TPHG/BTEX	L
~~Rinse~~											
Rinse (2)		1 l glass	11/7					X		WHCID	L

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 11/9/92
   Received by:
2. Relinquished by:
   Received by:
3. Relinquished by:
   Received by:
4. Relinquished by: Pony Express #4833875
   Received by: [illegible] On-Site Environmental 11/10/92
5. Relinquished by:
   Received by:
6. LABORATORY RECIEPT BY:
   NUMBER OF SAMPLES: DATE/TIME:

Delivered by: Hand ____ Airborne ____ Federal Express ____ Other ____

EPJ.005 Rev.0

Date of Report: February 8, 1993
Samples Submitted: January 28, 1993
Lab Traveler: 01-046
Project: Klickitat County

Matrix: Water
Date Extracted: January 28, 1993
Date Analyzed: January 28, 1993

TPH-HCID

Sample #	GC Characterization	o-terphenyl Surrogate Recovery
MW-1	Diesel range hydrocarbons[T]	65%
MW-2	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	90%
MW-3	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	86%
Rinse	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	90%
MW-4	Gasoline range hydrocarbons Diesel range hydrocarbons[T]	82%

QUALITY ASSURANCE

Method Blank	<.2 ppm Gasoline range hydrocarbons <.5 ppm Diesel range hydrocarbons <1.0 ppm Oil range hydrocarbons	93%

T-Chromatogram does not match typical diesel pattern.

Date of Report: February 8, 1993
Samples Submitted: January 28, 1993
Lab Traveler: 01-046
Project: Klickitat County

Matrix: Water
Units: ug/L (ppb)
Date Extracted: February 1, 1993
Date Analyzed: February 1, 1993

EPA 8020 & WTPH-G
(PURGE & TRAP)

Sample #:	MW-4
Dilution Factor	1
Analyte:	
Benzene	<1
Toluene	1.1[J,B]
Ethylbenzene	<1
m,p-Xylene	2.0[B]
o-Xylene	<1
TPH-Gas Units: mg/L (ppm)	<.3
4-Bromofluorobenzene Surrogate Recovery	91%

J-The value indicated was below the practical quantitation limit. The value is an estimate.

B-The analyte indicated was also found in the blank sample.

Date of Report: February 8, 1993
Samples Submitted: January 28, 1993
Lab Traveler: 01-046
Project: Klickitat County

Matrix: Water
Units: ug/L (ppb)
Date Extracted: February 1, 1993
Date Analyzed: February 1, 1993

EPA 8020 & WTPH-G
(PURGE & TRAP)

QUALITY CONTROL

Sample #: MW-4

	Method Blank	Original	Duplicate	RPD
Dilution Factor	1	1	1	
Analyte:				
Benzene	<1	<1	<1	0%
Toluene	1.3[J]	1.1[J,B]	<1	NA
Ethylbenzene	<1	<1	<1	0%
m,p-Xylene	2.1	2.0[B]	2.1[B]	4.9%
o-Xylene	<1	<1	<1	0%
TPH-Gas Units: mg/L (ppm)	<.3	<.3	<.3	0%
4-Bromofluorobenzene Surrogate Recovery	88%	91%	91%	

J-The value indicated was below the practical quantitation limit. The value is an estimate.
B-The analyte indicated was also found in the blank sample.
NA-Not applicable.

Date of Report: February 8, 1993
Samples Submitted: January 28, 1993
Lab Traveler: 01-046
Project: Klickitat County

Matrix: Water
Units: ug/L (ppb)
Date Extracted: February 1, 1993
Date Analyzed: February 1, 1993

EPA 8020 & WTPH-G
(PURGE & TRAP)

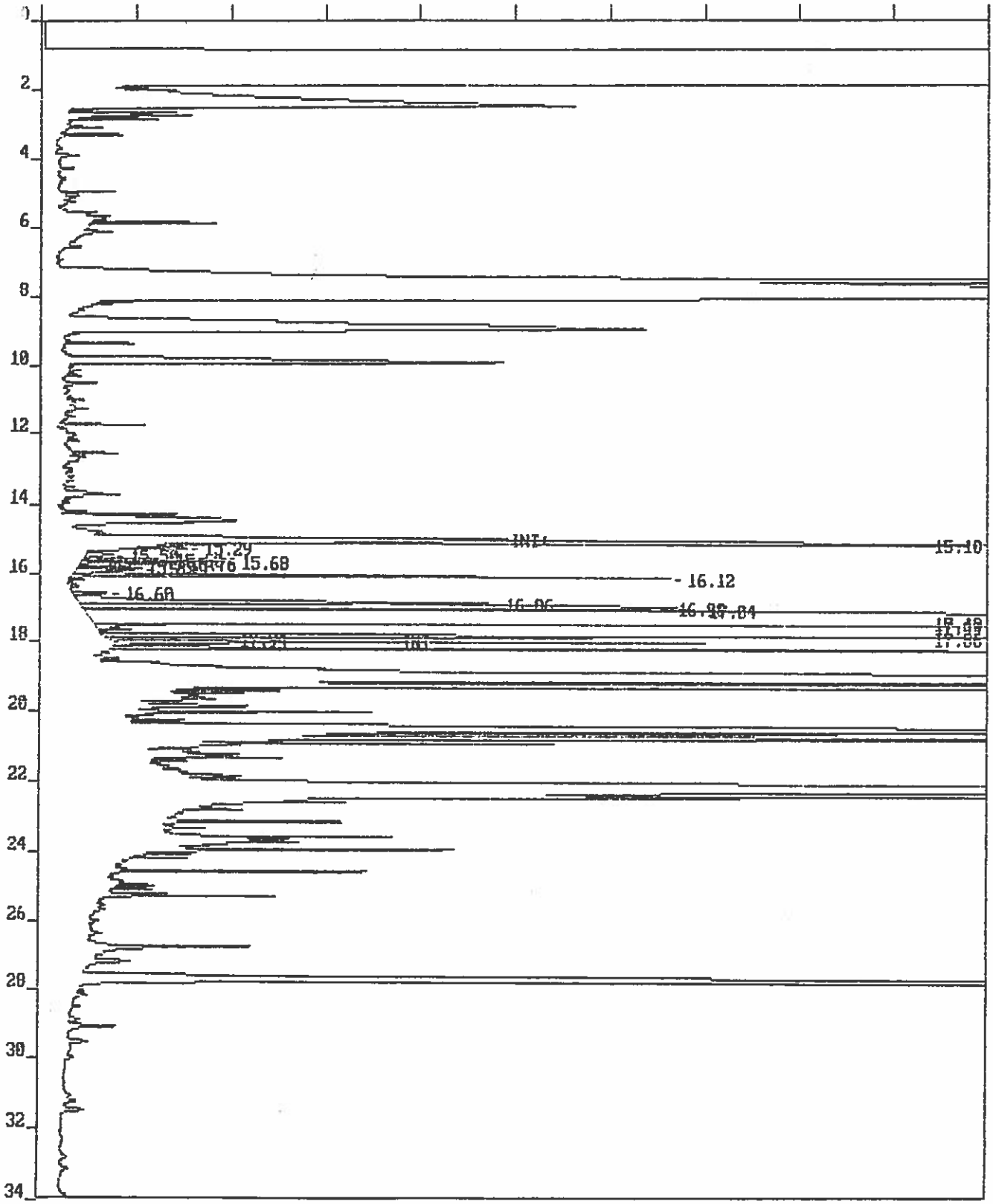
MATRIX SPIKE QUALITY CONTROL

Sample #: MW-4
Spiked @ 50 ppb

	M.S. Conc.	Percent Recovery	M.S. Dup. Conc.	Percent Recovery	RPD
Dilution Factor	1		1		
Analyte:					
Benzene	52	100%	51	100%	1.8%
Toluene	51	100%	50	100%	2.6%
Ethylbenzene	52	100%	51	100%	2.0%
m,p-Xylene	103	100%	101	99%	1.8%
o-Xylene	52	100%	51	100%	1.7%
4-Bromofluorobenzene Surrogate Recovery	88%		90%		

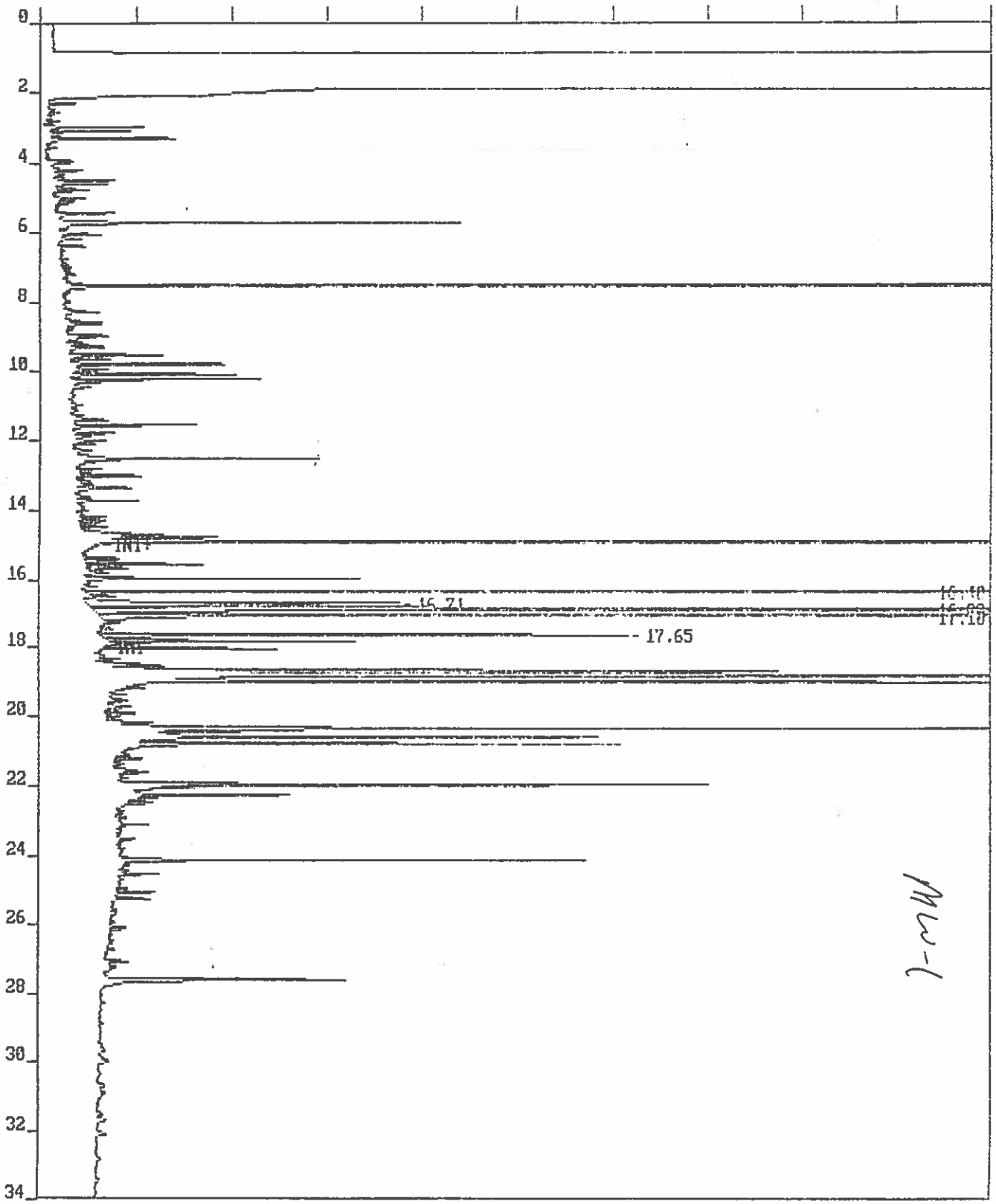
ile=C:\CP\DATA1\0317.26R Sample name=fish oil Date printed= 03-22-1993 Time= 11:57:40

0.00 to 34.00 min. Low Y = 0.70547 mv High Y = 10.70547 mv Span = 10.00000 mv



fish oil

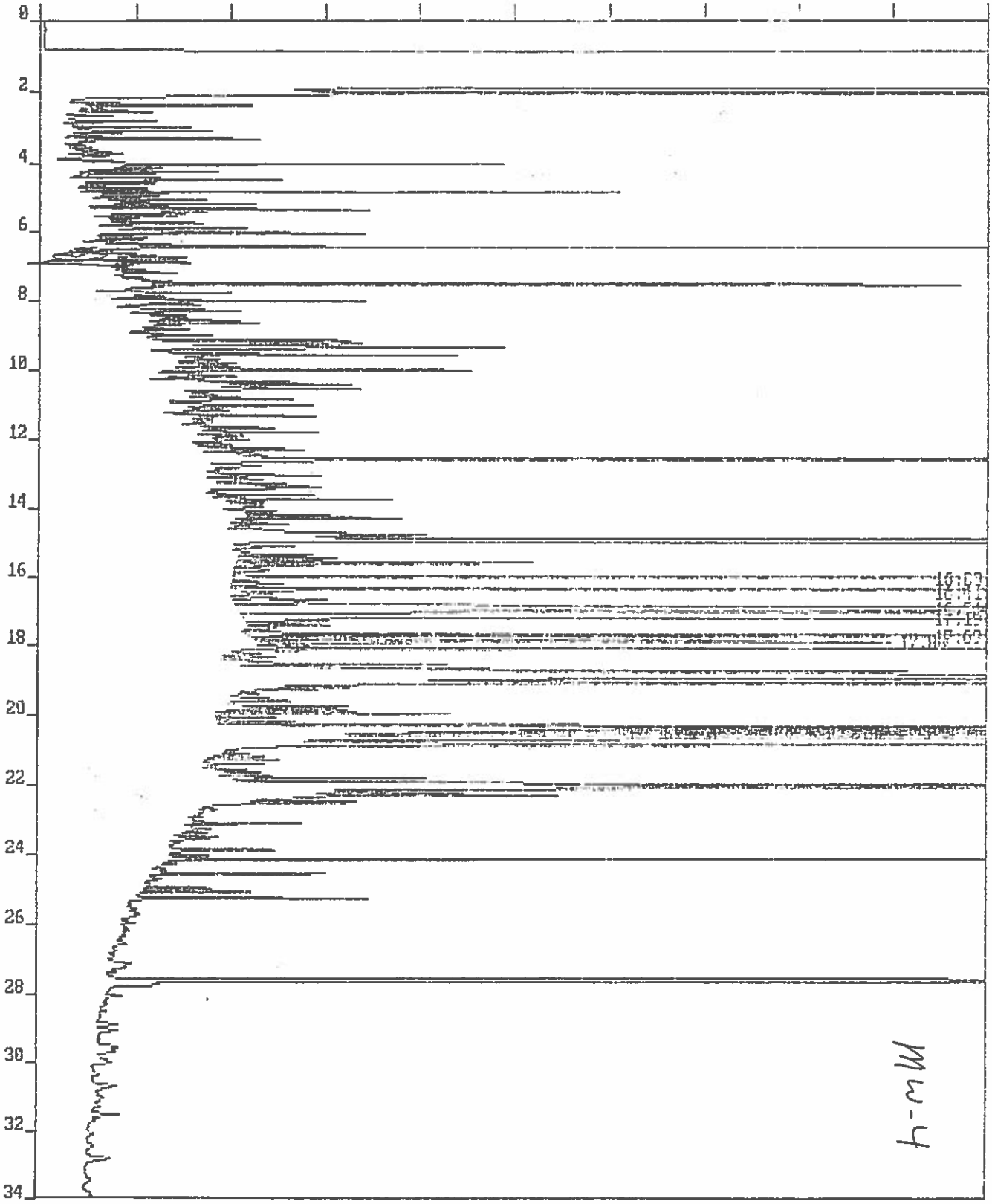
ile=C:\CP\DATA1\0128.07R Sample name=01-046-1 Date printed= 01-27-1993 Time= 19:35:29
0.00 to 34.00 min. Low Y = 0.39530 mv High Y = 1.39530 mv Span = 1.00000 mv



Compressed Air.
Fish Fertilizer

File=C:\CP\DATA1\0128.11R Sample name=01-046-5 Date printed= 01-27-1[illegible] Time= 22:16:26

0.00 to 34.00 min. Low Y = 0.40251 mv High Y = 1.40281 mv Span = 1.00000 mv



CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickatat County
Page 1 of 1

LABORATORY: ON-SITE ENVIRONMENTAL
ADDRESS: 2859 152ND. AVE N.E. REDMOND, WA 98052
TELEPHONE: (206) 883-3881
CONTACT: TAMMY HOWARD

SAMPLES TAKEN BY: Thomas H. Sunday J.

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
1	MW-1	Glenwood MW-1	1 l glass	1/27	1130				X		WHCID	L
1	MW-1	Glenwood MW-1	40 ml VOA (3)	1/27	1130				X		WTPHG/BTEX	L
2	MW-2	Glenwood MW-2	1 l glass	1/27	1222				X		WHCID	L
2	MW-2	Glenwood MW-2	40 ml VOA (3)	1/27	1222				X		WTPHG/BTEX	L
3	MW-3	Glenwood MW-3	1 l glass	1/27	1312				X		WHCID	L
3	MW-3	Glenwood MW-3	40 ml VOA (3)	1/27	1312				X		WTPHG/BTEX	L
4	Rinse	Glenwood Rinse	1 l glass	1/27	1445				X		WHCID	
5	MW-4	Glenwood MW-4	1 l glass	1/27	1420				X		WHCID	L
5	MW-4	Glenwood MW-4	40 ml VOA (3)	1/27	1420				X		WTPHG/BTEX	L

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: [Samples 1, 2, and 3 Run HCID, Hold TPHG/BTEX] Sample 4 run both. Thanks!

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday J. 1/27/93
   Received by:
2. Relinquished by:
   Received by:
3. Relinquished by:
   Received by:
4. Relinquished by: Pony Express # 4833885
   Received by: [illegible] 1/28/93
5. Relinquished by:
   Received by:
6. LABORATORY RECIEPT BY:
   NUMBER OF SAMPLES: DATE/TIME:

Delivered by: Hand ____ Airborne ____ Federal Express ____ Other X

EPJ.005 Rev.0

E.P. Johnson Construction, Inc.

E. Pauline Johnson

Kennewick, Washington
(509) 735-2479

General Contractor

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-0[illegible]

RECEIVED
FEB 28 1992
EPA - WOO

February 26, 1992

Environmental Protection Agency
c/o Washington State Department of Ecology
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Mr. Robert Cutler

Re: **Monthly Monitoring Well Analyses - Glenwood Site**

The Glenwood Site monitoring wells (MW-1 through MW-4) were sampled February 19, 1992. Wells MW-1, 2, and 3 were sampled and submitted for HCID analysis. All three wells were clean. Well MW-4 had visual, and olfactory (sense of smell) indications of gasoline contamination observed during sample collection. A table has been formulated to track the well sampling results from these four wells. A form has also been generated to document field information related to the well sampling. This information shall be updated and sent to you after the laboratory sampling results are known from each monthly interval.

The data clearly indicate an increase in contaminant levels as well as a substantial rise in the water table elevation. This increase can be attributed to the rise in the water table placing the groundwater in contact with a greater volume of contaminated soils. Based on this information, contaminant concentrations in the groundwater are expected to increase over the next few months as the spring snow melt from the Mount Adams vicinity will cause the water table to rise further. At this point, the data do not suggest a downstream migration of the contamination. However, as the water table continues to rise, it is possible that the contamination may break through the confining soils and migrate downstream.

Given the data presented thus far, I would recommend postponement of the proposed contaminated soil excavation in April, 1992, until the late summer months when the groundwater table is expected to be at its lowest elevation, as long as the continued downstream monitoring indicates no migration of the contaminated groundwater. If migration is confirmed, then immediate actions would be warranted for pump and treat of groundwater, excavation, or a combination of both actions.

In the meantime, continued monthly sampling of the wells shall be performed per your request, and the data analysis presented to your office in a timely manner. If you should have any questions, or require additional information, please call me at (509) 735-2479.

Sincerely,
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered State Site Assessor

cc: Mr. Steve Nygaard, Klickitat County w/attachment
Project File

GLENWOOD MONITORING WELLS

SAMPLE ID	MONTH	DEPTH TO GW (FEET)	8015 TPH GAS ppm	(8020 SOIL, 602 WATER) BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
MW-1	OCT/91	11.83	<1	<1	<1	<1	<1	N/A
	JAN/92	9.67	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	8.46	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92							
	APR/92							
MW-2	OCT/91	12.33	<1	<1	<1	<1	<1	N/A
	JAN/92	10.42	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.17	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92							
	APR/92							
MW-3	OCT/91	12.25	<1	<1	<1	<1	<1	N/A
	JAN/92	10.33	<.1	N/A	N/A	N/A	N/A	HCID
	FEB/92	9.00	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92							
	APR/92							
MW-4	OCT/91	13.25	4 *	15 *	22	<1	58 *	N/A
	JAN/92	10.33	16 *	120 *	250 *	33 *	970 *	N/A
	FEB/92	9.00	30 *	63 *	160 *	64 *	2760 *	N/A
	MAR/92							
	APR/92							

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

FIELD QUALITY CONTROL SAMPLING

SAMPLE ID	MONTH	8015 TPH GAS ppm	(8020,SOIL,602,H2O): BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	OTHER ANALYSES
DECON (MW-4 DUP)	FEB/92	20 *	62 *	120 *	60 *	2400 *	N/A
	MAR/92						
	APR/92						
RINSATE (RINSE) (BLANK)	FEB/92	<.1	N/A	N/A	N/A	N/A	HCID
	MAR/92						
	APR/92						

* = RESULT EXCEEDS ESTABLISHED CLEANUP LEVELS

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-1

DATE: 2/19/92 TIME: 1330

GASTECTOR MEASUREMENT: 0 ppm 0 % LEL 19.6 O_2

DEPTH TO WATER: 9' 10½"

DEPTH TO BOTTOM: 20' 5½"

VOLUME OF WATER: 10' 7" (6.91 gallons)

PURGE VOLUME: 20.72 gallons (30 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1'5"

DEPTH TO GW FROM GL: 8'5½"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: CLEAR - NO EVIDENCE OF CONTAMINATION

BAIL START TIME: 13:50:00 BAIL END TIME: 13:54:30

WELL CONDITION: Well dry after 12 full bails (8.4 gallons)

SAMPLE TIME: 14:09:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Cloudy (milky) color

OTHER: Water became cloudy (sandy) after 2ND bail.

Sample obtained for HGID analysis.

Sample appearance cloudy (Milky)

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-2

DATE: 2/19/92 TIME: 1420

GASTECTOR MEASUREMENT: 0 ppm 0 % LEL 19.5 O_2

DEPTH TO WATER: 11' 0"

DEPTH TO BOTTOM: 19' 7"

VOLUME OF WATER: 8' 7" (5.60 gallons)

PURGE VOLUME: 16.8 gallons (24 bails)

VOLUME OF BAILER: .7 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: -1' 10"

DEPTH TO GW FROM GL: 9' 2"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear - No evidence of contamination

BAIL START TIME: 14:35:00 BAIL END TIME: 14:44:00

WELL CONDITION: Near dry after 20 bails

SAMPLE TIME: ~~1559~~ 1449 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Sample cloudy (slightly sandy) color

OTHER: Well became cloudy (sandy) after second bail

Bailed total of 27 bails. Extracting about 3/4 full bail after #20

Sample obtained for HCID analysis

Thomas H. Eunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: GLENWOOD MW-3

DATE: ~~+50~~ 2/19/92 TIME: 1505

GASTECTOR MEASUREMENT: 50 ppm 0%LEL 17.5 O_2

DEPTH TO WATER: 8' 7"

DEPTH TO BOTTOM: 17' 9"

VOLUME OF WATER: 9' 2" (5.98 gallons)

PURGE VOLUME: 17.95 gallons (26 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9' 0"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Slightly cloudy (milky)

No evidence of petroleum contaminants.

BAIL START TIME: 15:20:00 BAIL END TIME: 15:27:30

WELL CONDITION: GOOD - Sandy color

SAMPLE TIME: 15:42:30 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Brown (sandy) color

OTHER: Well became cloudy (sandy) after 2ND bail

Sample obtained for HCID

Thomas H. Sunday Jr.

MONITORING WELL MEASUREMENTS

WELL IDENTIFICATION: Glenwood MW-4

DATE: 2/19/92 TIME: 1545

GASTECTOR MEASUREMENT: 1060 ppm 10 % LEL 6.9 O_2

DEPTH TO WATER: 8'7"

DEPTH TO BOTTOM: 19'9½"

VOLUME OF WATER: 11'2½" (7.32 gallons)

PURGE VOLUME: 21.95 gallons (32 bails)

VOLUME OF BAILER: .70 gallons

TOP OF PVC SLEEVE TO GROUND LEVEL: +5"

DEPTH TO GW FROM GL: 9'0"

COMMENTS:

WATER APPEARANCE BEFORE BAILING: Clear. Slight sheen on surface - non-measureable. Smell of gasoline in bailer.

BAIL START TIME: 16:00:00 BAIL END TIME: 16:15:00

WELL CONDITION: Good Sandy color

SAMPLE TIME: 16:30:00 RECHARGE TIME: 15 minutes

SAMPLE APPEARANCE: Slightly Sandy color, cloudy

OTHER: Well became cloudy (sandy) after 2ND bail. Distinct visible sheen and smell on purgewater bucket. Purgewater contained in drum on-site. Every 5 bails, allowed 1 min. recharge while disposing of bucket contents to drum.
Sample obtained for 8015G+BTEX. Duplicate sample obtained and labled "decon". Reinsate sample also submitted from bailer rinse from all four wells combined.

Thomas H. Sunday Jr.

RECEIVED
DEC 20 1991
EPA - WOO

JV/3e/SA/CRO

011505

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS
DEC 09 1991

SITE ASSESSMENT

for

KLICKITAT COUNTY PUBLIC WORKS
BICKLETON, GLENWOOD, AND LYLE, WASHINGTON.

Prepared for:
Mr. Steve Nygaard, Project Manager
Klickitat County Public Works
Goldendale, Washington

By:

Thomas H. Sunday Jr.
E. P. JOHNSON CONSTRUCTION, INC.
Kennewick, Washington

November 1991

Steve ~~[illegible]~~ Nygaard
Klickitat Co. Public Works
205 S. Columbus
Rm 103
Goldendale 98620
509-773-5512

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose.....1
1.2 Scope of Work.....2

2.0 BACKGROUND INFORMATION

2.1 Bickleton

2.1.1 Site Description and History.....3
2.1.2 Regional Geology.....4
2.1.3 Site Geology.....5
2.1.4 Groundwater Hydrology.....5

2.2 Glenwood

2.2.1 Site Description and History.....6
2.2.2 Regional Geology.....7
2.2.3 Site Geology.....7
2.2.4 Groundwater Hydrology.....7

2.3 Lyle

2.3.1 Site Description and History.....8
2.3.2 Regional Geology.....9
2.3.3 Site Geology.....9
2.3.4 Groundwater Hydrology.....10

3.0 FIELD ACTIVITIES AND INVESTIGATIVE RESULTS

3.1 Field Evaluation Methods.....11

3.2 Bickleton

3.2.1 Tank Inspection.....11
3.2.2 Soil Investigation.....12
3.2.3 Water Investigation.....14

3.3 Glenwood

3.3.1 Tank Inspection.....15
3.3.2 Soil Investigation.....15
3.3.3 Water Investigation.....16

3.4 Lyle

3.4.1 Tank Inspection.....18
3.4.2 Soil Investigation.....18
3.4.3 Water Investigation.....20

TABLE OF CONTENTS

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Bickleton

4.1.1 Conclusions.....21
4.1.2 Recommendations.....22

4.2 Glenwood

4.2.1 Conclusions.....22
4.2.2 Recommendations.....23

4.3 Lyle

4.3.1 Conclusions.....24
4.3.2 Recommendations.....25

APPENDIX A MAPS AND SKETCHES

APPENDIX B REQUIRED DOE CHECKLISTS

APPENDIX C LABORATORY ANALYTICAL RESULTS

APPENDIX D DOE SURROUNDING AREA WELL SURVEY

APPENDIX E NEW MONITORING WELL LOGS - GLENWOOD, WA.

1.0 INTRODUCTION

1.1 Purpose:

This report describes the findings to date, actions taken, and the current status of Petroleum Contaminated Soil (PCS) and Petroleum Contaminated Water (PCW) associated with a site assessment performed during the decommissioning of underground storage tanks for the Klickitat County Public Works Department in the cities of Bickleton, Glenwood, and Lyle Washington. The county's main facility is located at 205 South Columbia Avenue, Goldendale, Washington 98620. The city locations of the UST that were decommissioned are described as follows:

Bickleton, Wa.	SW 1/4, Section 15, T6N, R20E
Glenwood, Wa.	SE 1/4, Section 10, T6N, R12E
Lyle, Wa.	NE 1/4, Section 3, T3N, R12E

The data and documentation contained herein respond to regulatory requirements set forth by the United States Environmental Protection Agency and the State of Washington, Department of Ecology (DOE). In addition, our work responds to "due diligence" requirements set forth in the Comprehensive Environmental Response Compensation and Liabilities Act (Superfund or CERCLA) and Superfund Amendments and Reauthorization Act (SARA) for real estate transactions.

The DOE requires preservation of this report for 3 years. We recommend that you keep the report for at least 3 years or until the property is sold. The DOE also requires that a(n) Installation, Site Assessment, and or Permanent Closure checklist be completed. The applicable checklists have been completed and are attached as Appendix B.

1.2 Scope of Work:

The Klickitat County Public Works Department, herein referred to as the Project Manager, contracted E.P. Johnson Construction, Inc., to provide services for the complete decommissioning of UST systems at the county shops in Bickleton, Glenwood, and Lyle, Washington. Services were also contracted to provide a new AST system in Bickleton and to perform the required Site Assessments as required by the aforementioned regulations for the removal of UST systems. This contract provides the basis for this report.

2.0 BACKGROUND INFORMATION

2.1 Bickleton

2.1.1 Site Description and History:

Map 1 in Appendix A provides the location of the county shop facility relative to local topographic and manmade features. The property was purchased by Klickitat County in 1923. Prior to establishing the county shop facility the property was vacant with no prior usage of record.

The county shop facility is located near the east end of Bickleton's one and only main street. The surrounding topographic features indicate that the property lies within a local valley. An upward slope of 1 to 3 degrees border the property in almost all directions. A narrow channel extends to the southeast which is predominantly level. Physical boundaries include a small fueling depot, above ground storage tanks for local tanker, to the west; the county road and then residential property to the south, southeast, and east directions; and open field country to the north.

The property contains two buildings. The two bay shop, 40' by 40', is used for minor vehicle repairs and service. This building has a single floor drain which drains north of the structure. The diesel fuel tank was positioned approximately 10' north of the northwest corner of this building. The equipment storage building, 36' by 96', is used for equipment and material storage. The gasoline tank was positioned inside the building at the southwest corner. Several drums of hydraulic fluids and waste oils were also stored inside the building in the northwest section.

The property contained the following USTs. Sketch 1, of Appendix A, represents the facility layout.

Location	Tank No.	Size (gallons)	Year Installed	Product
Bickleton, Wa.	1	1000	1956	Unleaded Gas
Bickleton, Wa.	2	1500	1961	Diesel

The tanks were bedded in a poorly graded coarse grained sand (SP) classified according to the Unified Soil Classification System. A single dispensing pump for the diesel tank was located roughly 50' to the east of the tank. The dispensing pump for the gasoline tank was positioned directly above the south end of the tank.

2.1.2 Regional Geology:

The soils of the Bickleton area consist mainly of a shallow to moderately deep, well drained material that has been formed over time as 1) Mixed alluvium, mostly sands, silts, and clays deposited by glacial streams, 2) Loess, fine grained material mainly deposited by winds, and 3) Residuum, unconsolidated weathered plateau basalts that have accumulated as consolidated rock in some areas.

2.1.3 Site Geology:

The Bickleton site geology consists of surface soils covering hard rock and some fractured basalt. Surface soils in the western portion of the property ranged from 3' to 5' in depth eastward. The soils ranged from 5' to 7' in depth eastward inside the storage building. The northern portion of the property has soil depths ranging from 7' to 9' again sloping eastward. These surface soils are composed of a poorly graded gravel and 2" angular rock from the surface to 1' (GP); a gravelly sand with silt-sand mixtures from 1' to approximately 1' above the hard rock (SP-SM); and some clayey soils and hard clay deposits were found prior to the hard rock. The clay materials were slightly plastic in some areas (ML-CL). Some of the hard, dry clays appeared to have filled cavities and cracks in the fractured basalt and hard rock.

2.1.4 Groundwater Hydrology:

Groundwater tables were not encountered in either the tank removals or contaminated soil excavations. Minor volumes of moisture were found beneath each of the tanks and in the northern areas of the excavation. This moisture was allowed to collect in small pools over time for the purpose of sampling. Based on local informal interviews and water well information obtained from the DOE, groundwater depth is approximately 150 to 200 feet in this area.

2.2 Glenwood

2.2.1 Site Description and History:

Map 2 in Appendix A provides the location of the county shop facility relative to local topographic and manmade features. The property was purchased by Klickitat County in 1956. The property had supported a service station prior to the county purchase.

The county shop facility is located on the northwest corner of Division and E. Main Streets. The Glenwood area lies within a valley mostly composed of flat farmlands located southeast of Mount Adams. The physical boundaries of the facility include residential property to the west and north, a school to the east across Division Street, and a vacant lot (owned by the Glenwood Grange) to the south across E. Main Street. The County also owns another lot immediately south of the vacant lot. This additional property contains a sand shack for storage of road traction materials.

The property contains two buildings. The two bay shop, 41' by 32', is used for minor vehicle repairs and service. The equipment storage building, 20' by 25', is used for equipment and material storage. The gasoline and diesel tanks were positioned end to end parallel to E. Main Street. The product piping extended approximately 20' northward to a single pump island containing one diesel and one gasoline pump.

The property contained the following USTs. Sketch 2, of Appendix A, represents the facility layout.

Location	Tank No.	Size (gallons)	Year Installed	Product
Glenwood, Wa.	1	1000	1982	Unleaded Gas
Glenwood, Wa.	2	1000	1961	Diesel

The tanks were bedded in a poorly graded coarse grained sand. The bedding materials used represented the SP variety as determined by the Unified Soil Classification System.

2.1.2 Regional Geology:

The soils of the Glenwood area consist mainly of a very deep, well drained material that has been formed over time as mixed alluvium, mostly sands, silts, and clays deposited by glacial streams; and volcanic ash deposits.

2.1.3 Site Geology:

The Glenwood site geology consists of surface soils and an apparent groundwater table at approximately 13'. The surface geology of the county property contained poorly graded gravels and angular rock (GP) to a depth of 1'. The soils beneath the surface exhibited the characteristics of a sandy silt and clay mixture with a slight plasticity (SC-ML) extending downward to the groundwater.

Based on informal interviews, the soils beneath the pump island and product piping are suspected to be fill material. The native soils contained a bed of naturally rounded river rock beginning at approximately 4 to 5 feet beneath the surface and extending beyond 20 feet. The river rock ranged in size from 2 to 6 inches in diameter. Fine grained sands and silt (SM) were also found within the river rock formation.

2.2.4 Groundwater Hydrology:

An apparent groundwater table was found at a depth of approximately 13 feet beneath the surface. Based on informal interviews and local topographic data, the flow direction of this water table was presumed to be to the southeast.

2.3 Lyle

2.3.1 Site Description and History:

Map 3 in Appendix A provides the location of the county shop facility relative to local topographic and manmade features. The property was purchased by Klickitat County in 1930 and 1931. Prior to the county's purchase the property was vacant with no prior usage of record.

The county shop facility is located on the eastern edge of town on a small plateau to the north and above U.S. Highway 14. The Lyle area lies at the downward edge of mountainous hills bordering the columbia river. The physical boundaries of the facility include residential property to the west and south, and vacant steep hills to the north and east.

The property contains two buildings. A shop and sand shack combination building, 36' by 75', is used for minor vehicle repairs and material storage. The drum storage building, 12' by 12', is used for storage of hydraulic fluids and waste oils. The two diesel tanks were positioned parallel with each other south of the drum storage building approximately 10' from the property fence. The gasoline tank was positioned parallel and to the north of the drum storage building. The product piping from the gasoline tank extended approximately 30' southwest to a single pump island containing one diesel and one gasoline pump. The product piping from the two diesel tanks ran to the northwest approximately 20' to the pump island.

The property contained the following USTs. Sketch 3, of Appendix A, represents the facility layout.

Location	Tank No.	Size (gallons)	Year Installed	Product
Lyle, Wa.	1	1000	1973	Unleaded Gas
Lyle, Wa.	2	500	1961	Diesel
Lyle, Wa.	3	1000	1961	Diesel

The tanks were bedded in a poorly graded gravels. The bedding materials used represented the GP variety as determined by the Unified Soil Classification System.

2.1.2 Regional Geology:

The soils of the Lyle area consist mainly of a very deep, well drained material that has been formed over time as scoured floodwater terraces with nearly level to moderately steep slopes. The soil deposits have accumulated over time from 1) Mixed alluvium or outwash, mostly coarse sands and silts deposited by glacial meltwater streams, and 2) Loess, fine grained material mainly deposited by winds over plateau basalt formations.

2.1.3 Site Geology:

The Lyle site geology consisted of well graded sandy gravels (GM) from the surface to approximately 5 or 6 feet. From this depth to beyond 30' it was more descriptive of well graded gravels with little fines (GW). Based on informal interviews, the site was once a gravel quarry.

2.3.4 Groundwater Hydrology:

Groundwater tables were not encountered in either the tank removals or contaminated soil excavations. Based on local informal interviews and water well information obtained from the DOE, groundwater depth is approximately 100 to 150 feet in this area.

3.0 FIELD ACTIVITIES AND INVESTIGATIVE RESULTS

3.1 Field Evaluation Methods

The field screening techniques utilized for this project include Thin Layer Chromatography (TLC) for semi-volatile petroleum products (e.g. diesel, motor oil) and total organic vapor (TOV) analysis for volatile products. The TLC method provides direct a comparison of determined values in parts per million against those requirements specified in the State of Washington, Model Toxics Waste Control Act (MTWCA).

TOV values are determined by using "headspace" measurements that allow the soil contamination to evaporate inside a sealed jar. The seal (aluminum foil) is punctured with a vapor probe and the TOV measured in parts per million (ppm). Unlike the TLC method, TOV values provide a crude correlation to actual analytical values.

A GASTECH field instrument was used to determine the presence or absence of organic vapors emanating from the soil in headspace (soil confined in a sealed jar) during the clean up phase. This particular instrument employs the principle of heated catalytic elements in a Wheatstone Bridge circuit which react to combustible gases.

3.2 Bickleton

3.2.1 Tank Inspection:

Each tank was inspected for signs of leakage or holes after they were removed. The tanks were scraped and externally cleaned in areas where signs of corrosion were visually evident. The 1500 gallon diesel tank had no evident holes. The 1000 gallon gasoline tank had approximately four holes, 2 to 4 mm in size, located near the bottom north end.

3.2.2 Soil Investigation:

Field screening of the diesel tank excavation indicated no detectable contamination. Laboratory samples and analytical requirements were submitted in accordance with the established procedures contained in DOE publication 90-52 "Guidance for Site Checks and Site Assessments for Underground Storage Tanks". The results of those samples, enclosed in Appendix C, indicated that contamination was not present in excess of established cleanup limits.

After the removal of the gasoline tank, located inside the storage building, the immediate underlying soils were found to be contaminated. The immediate soils, approximately 5 cubic yards, were removed and contained on 6 mil visqueen. The soils surrounding the tank excavation also appeared to have additional contamination. Field screening using the TLC method indicated the presence of waste oils and some diesel fuels well in excess of established cleanup levels. All the waste oil drums were moved from the northwestern portion to a concrete pad located near the center of the building. Approximately 250 cubic yards of contaminated soils were excavated from inside the building. Contaminated soils were left in place located beneath the concrete footers of the building supporting the west and north walls. Further excavation inside the building was terminated for practical purposes and at the owners request. Further soil cleanup within the confines of the building would require partial, if not complete, removal of the building structure.

In an attempt to characterize the horizontal extent of the contamination, a series of test pits were excavated and tested for petroleum contamination. Field screening using both TLC and TOV methods were utilized to examine each test pit. Sketch 1A, of Appendix A, indicates the initial expected zone of contamination.

Soil contamination was also detected beneath the fuel dispensing pump east of the diesel tank location. Field screening indicated the presence of both diesel fuel and gasoline contamination beneath this pump. Based on informal interviews with county shop personnel, it was determined that the services of the two tanks had been switched back and forth in the past. This accounts for the gasoline contamination beneath a diesel fuel pump. Additional information was obtained identifying a location outside the storage building west of the gasoline tank where an above ground diesel fuel tank had been positioned.

The outside area excavation began at the southwest corner of the storage building. Horizontal and vertical limits were frequently examined using TLC, TOV headspace, olfactory, and visual screening methods. The excavation progressed northward to a narrow channel between the two buildings as soils contaminated with diesel fuel and waste oils were exhumed. As the excavation proceeded to the north side of the storage building, gasoline contamination was detected within the last 1' of soil and fractured basalt covering the hard rock floor. This gasoline contamination had been introduced to the soils from beneath the fuel dispensing pump. In this same area, approximately 6' of clean overburden was removed prior to encountering contaminated soils.

At the completion of the excavation, approximately 1775 cubic yards of soil had been removed. Of this total, some 625 cubic yards were diagnosed as clean soil, yielding a total of 1150 cubic yards of petroleum contaminated soil and basalt fragments. Sketch 1B, of Appendix A, provides the estimated dimensions of the excavation. A total of 31 discrete laboratory samples were taken to determine the effectiveness of the cleanup. Sketch 1C, of Appendix A provides the locations, and Table 1A, of Appendix C, lists the results as shown in the library of analytical reports.

Due to the extensive nature of the cleanup excavation, minor changes were made to the established DOE sampling protocol. Actual discrete samples were not obtained for the product piping and fuel dispensing pump from the diesel tank. Also the prescribed sampling for the gasoline tank removal were not specifically obtained. Those soils were consumed in the remediation effort. The laboratory samples obtained at the conclusion of the soil remediation are representative of those individual areas.

3.2.3 Water Investigation:

Small quantities of moisture were observed beneath each tank. An individual pool was hand excavated at the bottom of the diesel tank excavation. The water had no field signs of contamination. A sample was taken and submitted for analysis. The results of that analysis indicated no contamination above established limits.

The moisture observed beneath the gasoline tank had noticalbe contamination by olfactory response. Due to the extremely limited quantity, the moisture was removed with the immediate underlying soils. There was no obvious sign of free product present.

During the course of petroleum contaminated soil excavation liquid samples were obtained from four individual areas. One isolated small pocket of an oily liquid was discovered among the hard rock outside of the storage to the west of the gasoline tank. A small bailer was fabricated from a sample container lid to extract the liquid for sample collection. After sample collection there was no evident recharge to the pool. A jackhammer was used to remove the hard rock in this area to facilitate complete removal of the liquid.

The other three areas of liquid collection were obtained from the excavation area north of the storage building. Moisture had collected at the base of an initial test pit located between the storage building and the dispensing pump. The other collection pools were obtained after the complete soil excavation. There were two distinct areas with enough moisture to accommodate sampling. The extremely small liquid quantities combined with the laboratory data identifying concentrations of TPH - Gas and BTEX just above cleanup standards, did not warrant further action. Table 1B, of Appendix C, lists the results of the water sampling.

3.3 Glenwood

3.3.1 Tank Inspection:

Each tank was inspected for signs of leakage or holes after they were removed. The tanks were scraped and externally cleaned in areas where signs of corrosion were visually evident. Neither the 1000 gallon diesel nor the 1000 gallon gasoline tank had any indication of holes or product leakage. Product piping to both tanks was intact and in good condition.

3.3.2 Soil Investigation:

A single excavation was used to remove both fuel tanks. Field screening of the tank excavation indicated no detectable contamination. Laboratory samples and analytical requirements were submitted in accordance with the established procedures contained in DOE publication 90-52 "Guidance for Site Checks and Site Assessments for Underground Storage Tanks". The results of those samples, enclosed in Appendix C, indicated that contamination was not present in excess of established cleanup limits.

Field Activities

After the removal of the fuel pumps and the associated island, noticeable contamination was detected beneath the gasoline pump. The contaminated soils were removed to a depth of approximately 13'. An apparent groundwater table was encountered at this depth and further excavation was aborted. Horizontal limits were initially established using TOV headspace and olfactory response field screening methods. However, soil contamination was again detected at the groundwater interface outside the previously established horizontal limits. Laboratory samples of the surrounding soil at this interface and the groundwater were submitted for analysis. The results of these analyses were well in excess of established limits. The soil and water laboratory data are listed in Appendix C, tables 2A and 2B respectively. The excavation was backfilled for safety, located within 10' of the county road, and to permit the installation of groundwater monitoring wells. Sketch 2, of Appendix A shows the locations of the excavation and monitoring wells.

Due to the extensive nature of the cleanup excavation, minor changes were made to the established DOE sampling protocol. Actual discrete samples were not obtained for the product piping and fuel dispensing pumps at the pump island. Those soils were consumed in the remediation effort. The laboratory samples obtained at the conclusion of the soil remediation are representative of those individual areas.

3.3.3 Water Investigation:

Based on informal interviews, sufficient information was obtained to suggest that the general flow direction of groundwater was to the southeast from the subject property. Tacoma Pump and Drill, a state licensed well drilling firm, was contracted to install and develop four monitoring wells for the purpose of establishing flow direction and plume characterization.

The four wells are of the same design drilled to a depth of 20' below grade. The wells are constructed of a 4" schedule 40 PVC with a 10' screen at 20 slots per inch. A silica sand pack surrounds the well screen interval and bentonite pellets were used to provide the surface seal. Security casings and protective guardposts were also installed. Soil samples were obtained at 5' intervals for field screening using the TOV headspace and olfactory response methods. No indications of contamination were present on the upgradient or two downgradient wells.

The fourth well, positioned at the source of the contamination, was contaminated at the 10', 15', and 20' samples. Drill cuttings and decontamination fluids from this well have been contained in 55 gallon drums. Laboratory samples of soils collected from the 15' interval were collected from each well.

The wells were developed by Tacoma Pump and Drill. Representative samples were then collected, after purging each well, for laboratory analysis. Development and sampling purgewater from the source well have been contained in 55 gallon drums. Laboratory results indicated that the soils and groundwater samples obtained from the upgradient and two doungradient wells were free of contamination. The soils and groundwater samples obtained from the source well contained gasoline contamination in excess of established limits.

The laboratory sample results and field water level measurement and recharge data, suggest that 1) The groundwater flow is to the south and southeast direction, 2) The contamination plume is primarily confined to county property, and 3) The established recharge rates indicate a much greater flow on the western portion of the property.

Another possible conclusion could be drawn based on the data presented in section 2.2.3 Site Geology. The data presented therein suggest that the soils in the zone of contamination may not be native to the area and would possess a much tighter containment and resistance to water migration than the apparent native soils composed of rounded river rock that surround the contaminated area.

3.4 Lyle

3.4.1 Tank Inspection:

Each tank was inspected for signs of leakage or holes after they were removed. The tanks were scraped and externally cleaned in areas where signs of corrosion were visually evident. The 1000 gallon diesel tank had no evidence of holes or direct leakage. The 1000 gallon gasoline tank had only one hole, about 2 mm in size located near the springline of the tank on the east end. This hole was difficult to locate and did not appear to actually be leaking fuel to the bedding material. The 500 gallon diesel tank was found to be in deplorable condition with holes found throughout the lower half of the tank from end to end. This tank was reported to have failed a tightness test performed on or about August 28, 1991. The product piping appeared to be in good condition at each of the tanks.

3.4.2 Soil Investigation:

After the removal of the two diesel tanks, contamination was detected in the underlying soils using the TLC and olfactory response methods. Given the nature of the soils, well graded gravels with some sand mixtures, maintaining sidewalls of the excavation was difficult at best. The small drum storage building was relocated on the property to permit an area for ramp down of the excavation equipment.

After the removal of the building, the immediate soils were found to be contaminated with a heavy hydraulic type oil. This heavy oil contamination extended downward approximately 4' and was removed as contaminated soil to create the ramp for the excavator.

The excavation continued to a depth of approximately 30'. At this point field screening methods were no longer detecting diesel fuel contamination. Due to the nature of the loose gravels and the excavation depth, personnel entry was eliminated. The bucket of the excavator was wiped clean with petroleum absorbent towels and samples were obtained from the center of the bucket. Sketch 3 and 3A, of Appendix A, show the locations of the tanks and excavation samples respectively.

The 1000 gallon gasoline tank had only one hole, about 2 mm in size located near the springline of the tank on the east end. This hole was difficult to locate and did not appear to actually be leaking fuel to the bedding material. Field screening and laboratory samples provided no indication of gasoline contamination. However, as with the diesel tank excavation, heavy oils were present on the hydrocarbon identification.

Based on informal interviews, the county shop location had at one time been used as an asphalt batching center. In addition, some of the county vehicles supplying "road oil", a brand name CMS2S product, would apply and or discharge near empty payloads to the gravels on the property. Therefore, the oils detected within the gravels appear to be remnants of an age old process of county road maintenance. The TLC field screening method supports this conclusion having periodically identified traces of asphalt and heavy oils not representative of waste oil, hydraulic fluid, or other fuel products.

Due to the extensive nature of the cleanup excavation, minor changes were made to the established DOE sampling protocol. Actual discrete samples were not obtained for the product piping and fuel dispensing pumps at the pump island. Those soils were consumed in the remediation effort. The laboratory samples obtained at the conclusion of the soil remediation are representative of those individual areas. The laboratory analytical results are listed in table 3A, of Appendix C.

3.4.3 Water Investigation:

Groundwater tables were not encountered in either the tank removals or contaminated soil excavations. Based on local informal interviews and water well information obtained from the DOE, groundwater depth is approximately 150 to 200 feet in this area.

A city water well, to be used as backup only, was located approximately 150 yards horizontally to the south and some 80 yards lower in elevation from the subject property. The local PUD authority was contacted to obtain permission to sample the well for petroleum contamination. The PUD engineer stated that the well was constructed of a 12" casing and the depth to groundwater was approximately 80'. The well pump, estimated at 100 gpm, was actuated and allowed to pump for about 30 minutes.

A representative laboratory sample was taken for petroleum hydrocarbon analysis. The results of that analysis indicated that no contamination was present in the sample. The laboratory analytical results are listed in table 3B, of Appendix C.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Bickleton

4.1.1 Conclusions:

The underground storage tanks, product piping, and fuel dispensing pumps have been removed from the property. Approximately 1150 cubic yards of petroleum contaminated soil have been excavated and removed from the property. The contaminated soils were disposed of at the Robanco Landfill located just north of Roosevelt, Washington. The entire excavation has been backfilled to grade. An aboveground 500 gallon steel waste oil tank, mounted inside a steel box for secondary containment, was installed by Klickitat County personnel to contain all current and future waste oils. This waste oil tank is positioned in the northwest corner of the storage building. A new aboveground dual compartment 1000 gallon gasoline and 1000 gallon diesel fuel storage and dispensing system was installed north of the shop building.

There are some areas of contaminated soil that shall remain on the property at the owners request. The applicable areas and concentrations, documented by this report, are predominantly located beneath foundation structures supporting the buildings on site. The excavations performed inside the storage building were accomplished with some alterations to internal structural supports. Further soil removal from inside the storage building cannot be reasonably accomplished without unrepairable damage to, or destruction and removal of the building itself.

The areas of known soil contamination located outside and away from building structures have been excavated to within practical limits. Soils, apparently contaminated, to the west of the storage building are representative of a very small volume of loose soils, 1 to 3 inches, scattered among some hard rock formations.

Based on the data provided from the numerous test pits used to characterize the extent of the soil contamination, there is no evidence suggesting that petroleum contamination has migrated off-site.

The small volumes of moisture collected, less than 5 gallons in each sample location, do not substantiate the need for compliance monitoring wells to be installed on the property.

During the course of this investigation and remediation project, the DOE had been requested to visit the site due to the nature of contaminated soils beneath building foundations. No site visits were made by DOE personnel due to their schedule and workload at that time.

4.1.2 Recommendations:

Based on the data contained within this report there is no obvious threat to public health nor the environment from this location. Therefore, no further remedial actions are recommended for this site.

4.2 <u>Glenwood</u>

4.2.1 Conclusions:

The underground storage tanks, product piping, and fuel dispensing pumps have been removed from the property. Approximately 90 cubic yards of petroleum contaminated soil have been excavated and removed from the property. The contaminated soils were disposed of at the Robanco Landfill located just north of Roosevelt, Washington. The entire excavation has been backfilled to grade.

Recommendations

Contaminated groundwater was located at approximately 13' below grade. Approximately 6" of soil above and surrounding the open groundwater interface are also contaminated.

A total of four groundwater monitoring wells were installed on county property. Laboratory samples obtained from soils during the drilling process, and representative groundwater after the installation and development of the wells, indicated no contamination in the upgradient nor downgradient wells. This data suggest that the contaminated groundwater plume does not extend beyond county property.

The site geology descriptions, provided in section 2.2.3, and the observed well recharge rates obtained during sampling, suggest that the majority of the groundwater flow may be to the west of the contaminated area. The tight soils encountered in the excavation in comparison with those observed during well installation may actually act as a barrier to both confine the contamination and slightly alter the groundwater flow direction. This would account for the apparent lack of contaminant migration and the difference in well recharge rates.

4.2.2 Recommendations:

Additional remediation of the contaminated soil and groundwater is required for this location. Two options exist for achieving remediation of the contaminated soils and groundwater.

1.) Install a groundwater pump and treat system on the source well.

2.) Continue the excavation with simultaneous groundwater pumping until clean samples are obtained.

A groundwater pump and treat system would be a time consuming effort yielding a significant volume of contaminated water that would require treatment or disposal. The final result may provide a clean water sample however, the result may be temporary depending on the amount of contamination that was flushed from the soils at the groundwater interface.

Continuation of the excavation with timely removal of collected groundwater would provide a more rapid cleanup. The contaminated soils would be removed entirely with direct sample verification. The existing downgradient monitoring wells would serve as detection points should the contamination migrate from the excavation disturbance. This remedial alternative should produce far less volumes of contaminated water for disposal. The subsurface geologic descriptions provided in this report are favorable for this action.

4.3 Lyle

4.3.1 Conclusions:

The underground storage tanks, product piping, and fuel dispensing pumps have been removed from the property. Approximately 375 cubic yards of petroleum contaminated soil have been excavated and removed from the property. The contaminated soils were disposed of at the Robanco Landfill located just north of Roosevelt, Washington. The entire excavation has been backfilled to grade.

According to informal interviews, stated within this report, the subject property had apparently supported a gravel quarry and was utilized as an asphalt batching center and depot for road oil distribution. Contamination of this nature is suspected to exist universally throughout the gravels on the property.

The diesel fuel contamination of the soils beneath the 500 gallon tank appear to have been removed. Laboratory samples obtained from excavator bucket samples at the bottom of the excavation, identified no diesel fuel contamination but continued to contain the presence of heavy oils.

The laboratory sample obtained from the nearby, downgradient, city backup well, indicated no presence of diesel fuel contamination.

During the course of this investigation and remediation project, the DOE had been requested to visit the site due to the nature of the contaminated gravels apparently containing asphalt and or road oil products. No site visits were made by DOE personnel due to their schedule and workload at that time.

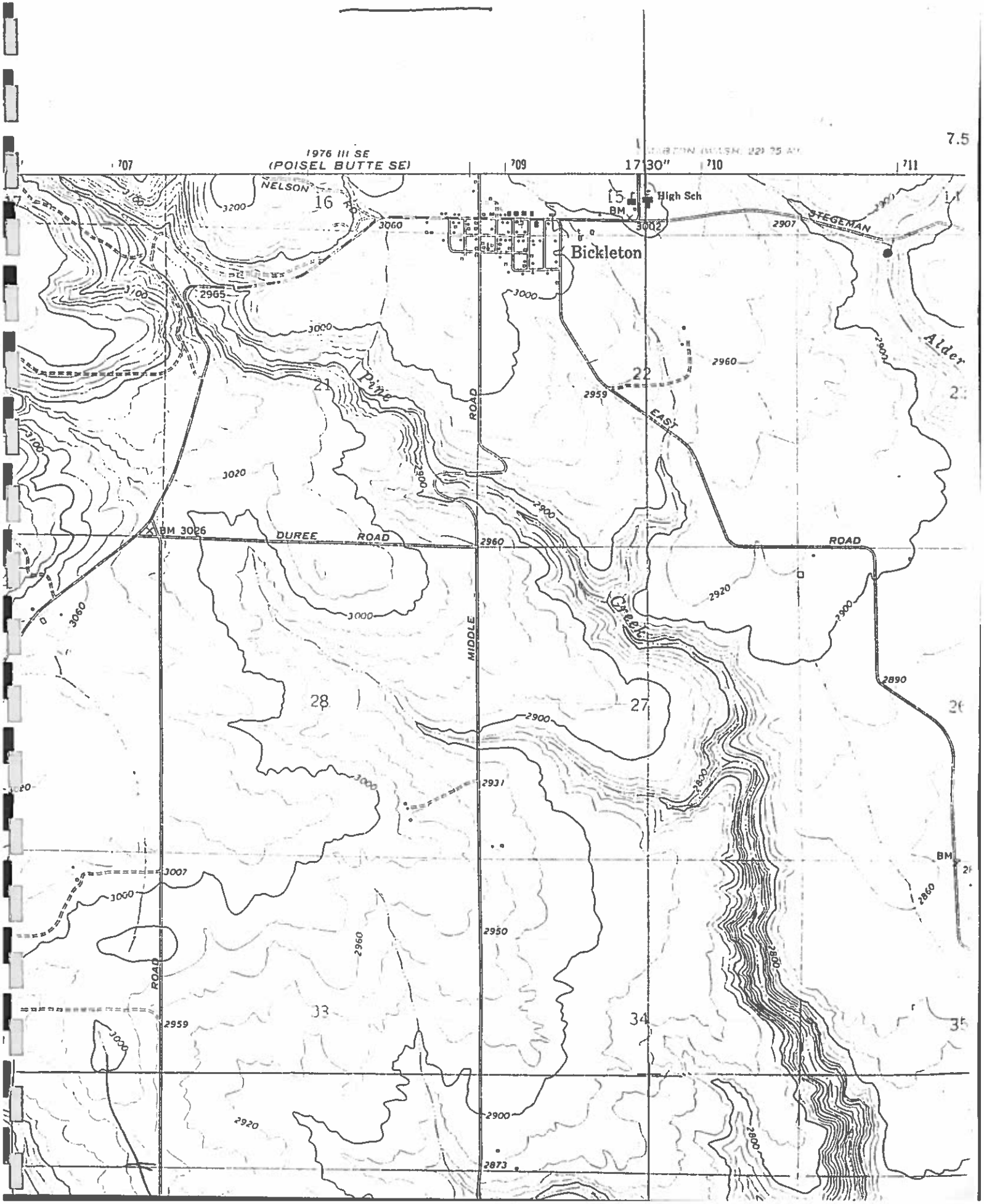
4.3.2 Recommendations:

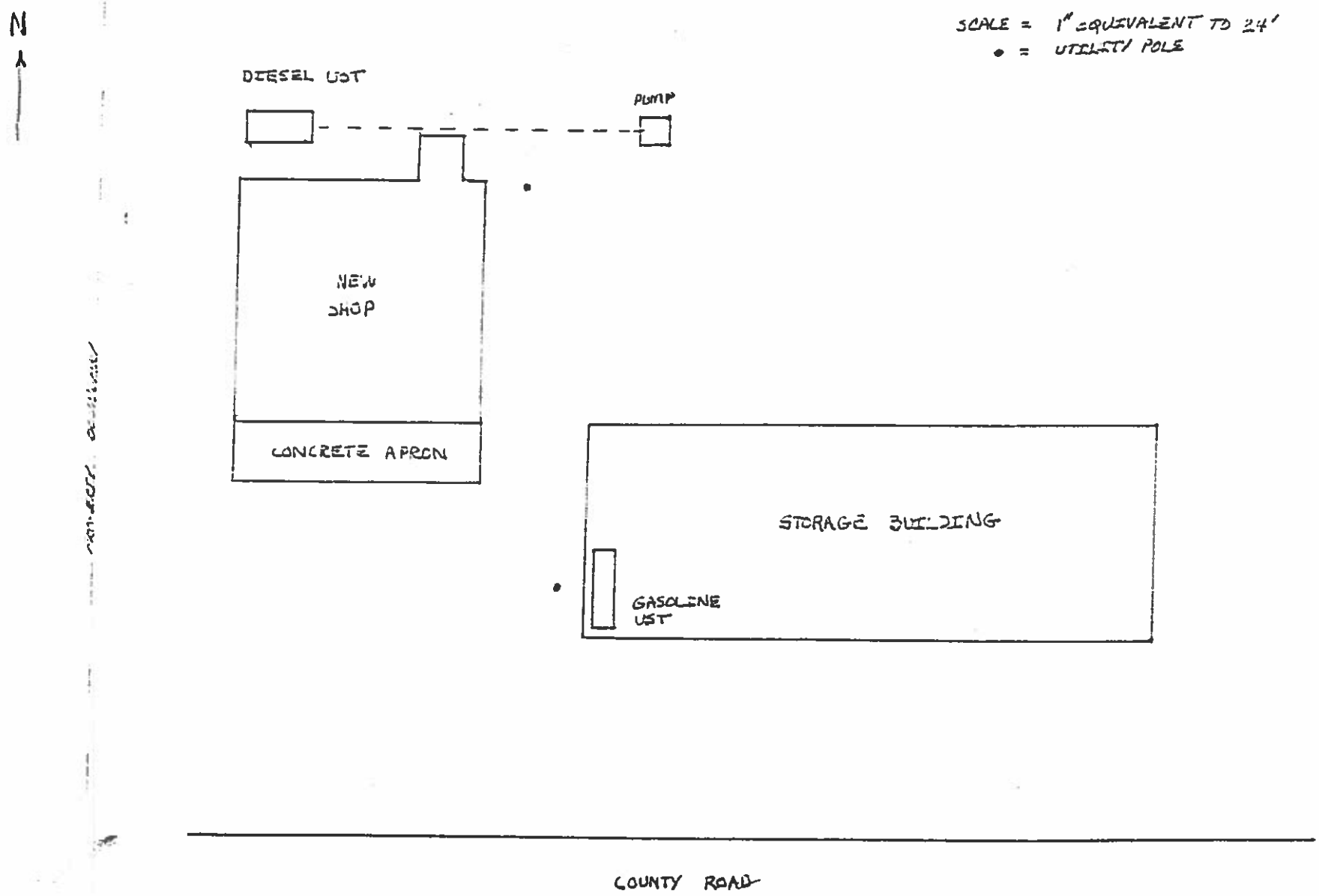
Based on the data contained within this report there is no obvious threat to public health nor the environment from this location. Therefore, no further remedial actions are recommended for this site.

APPENDIX A

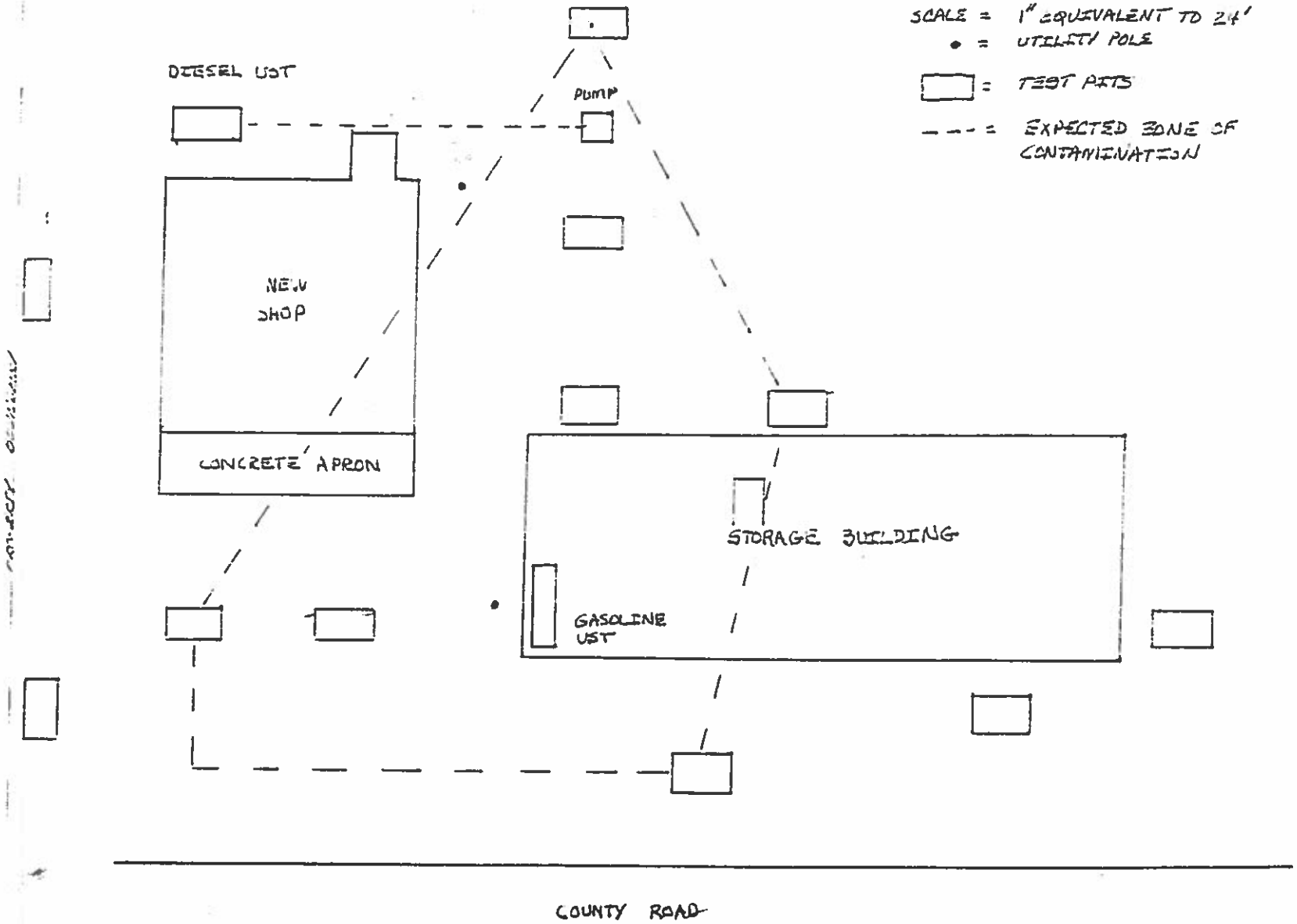
MAPS AND SKETCHES

MAP 1
BICKLETON

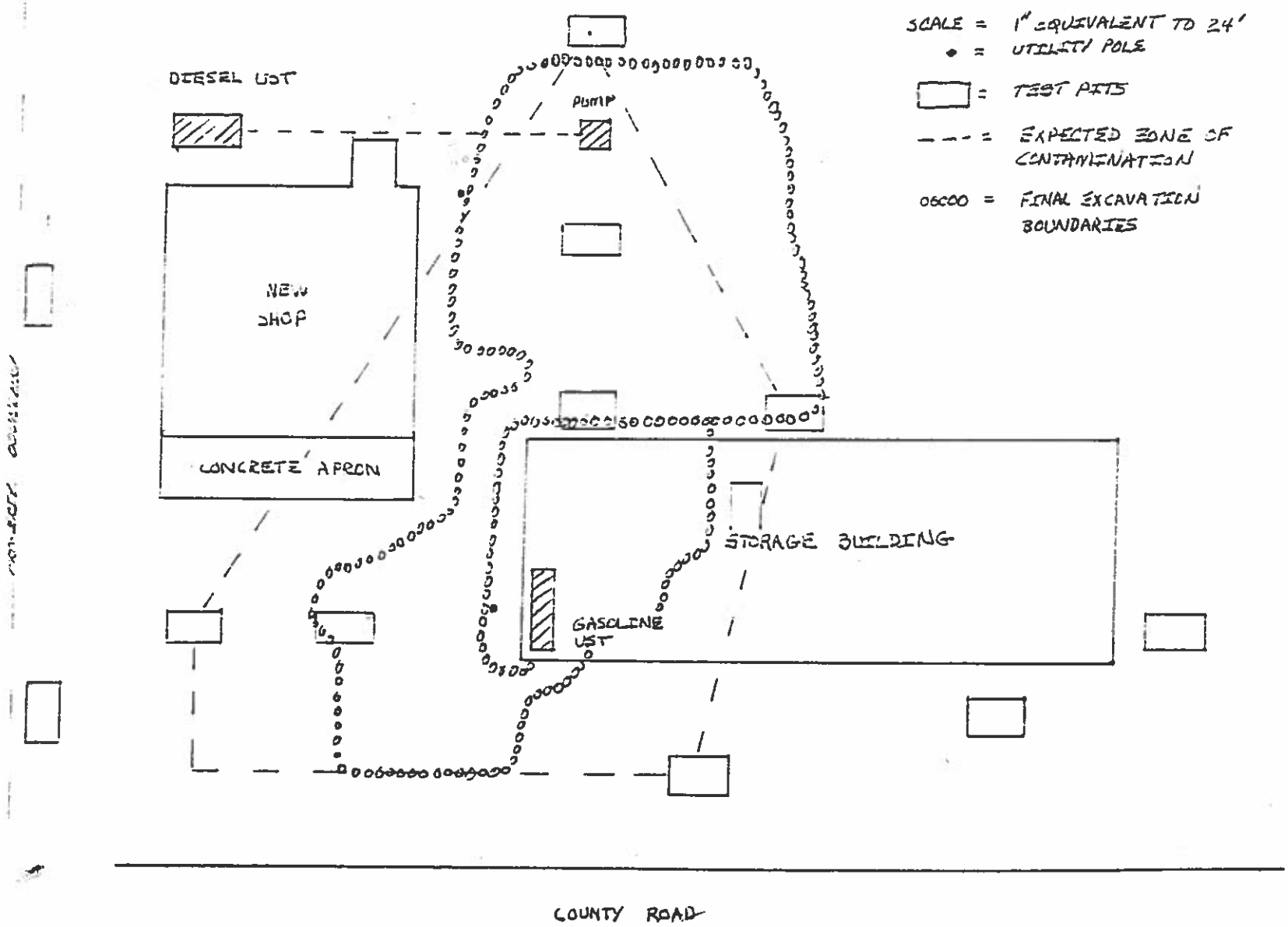




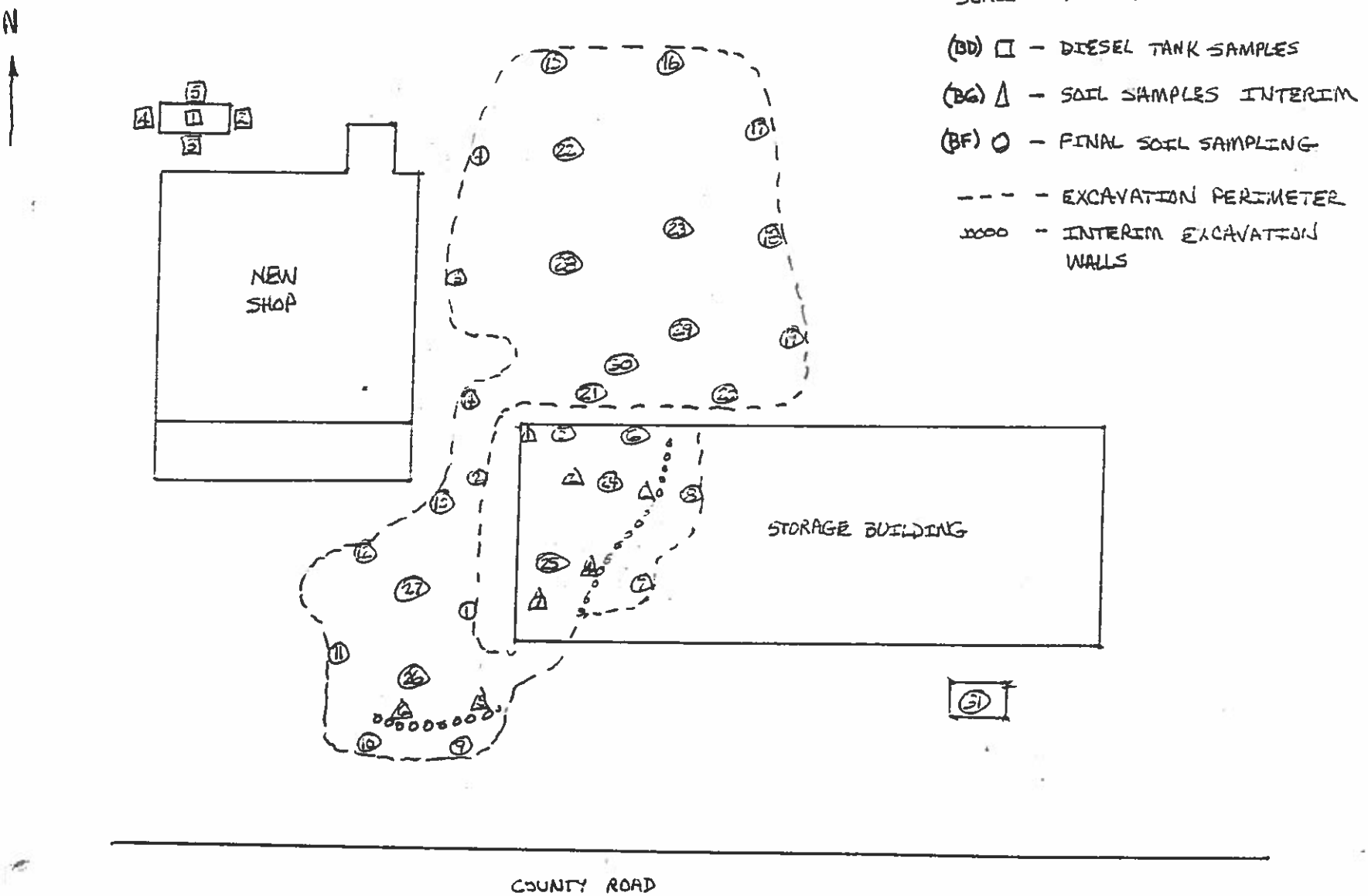
SKETCH 1 KLICKITAT COUNTY SHOP BICKLETON, WA.



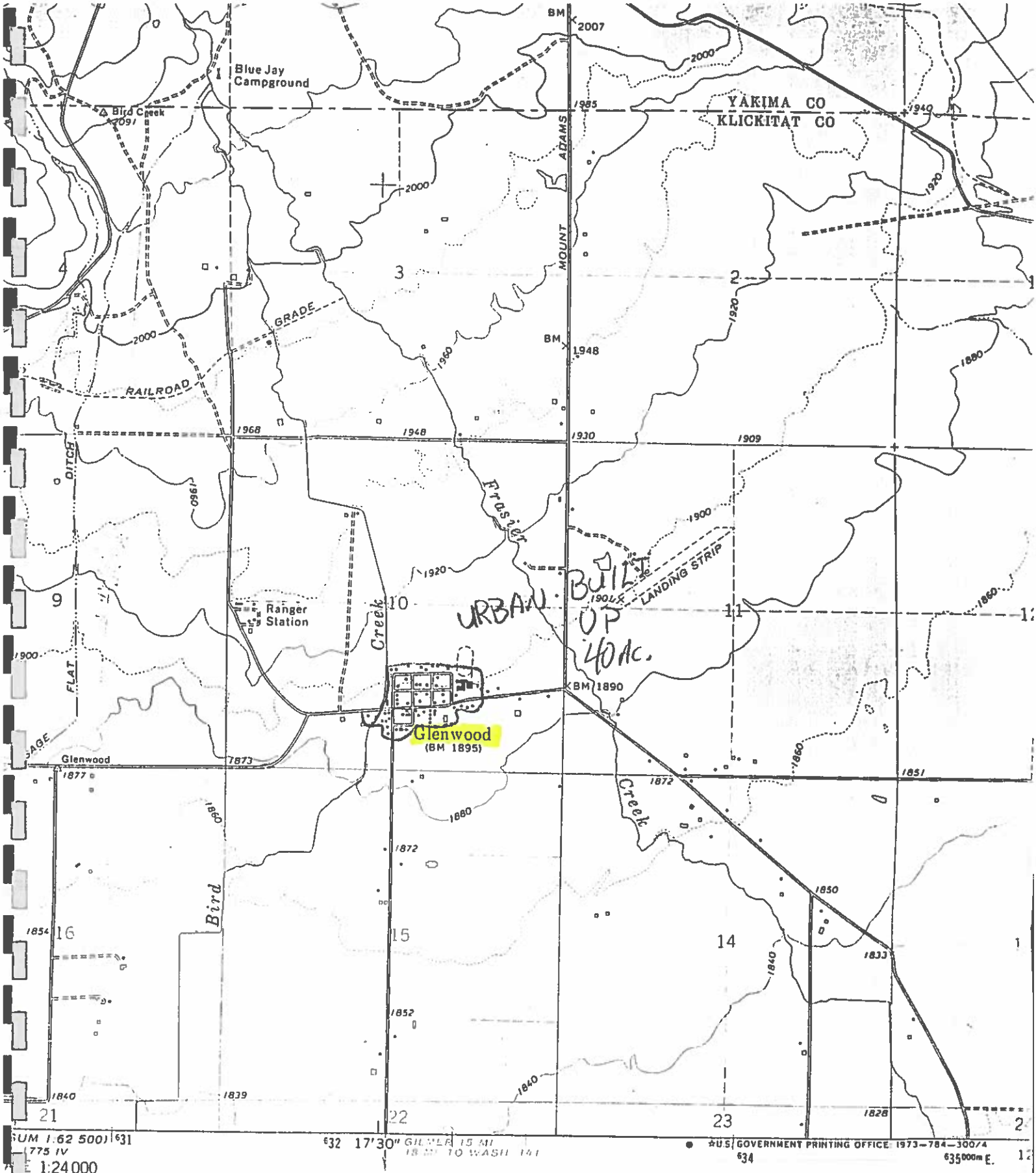
SKETCH 1A KLICKITAT COUNTY SHOP BICKLETON, WA.



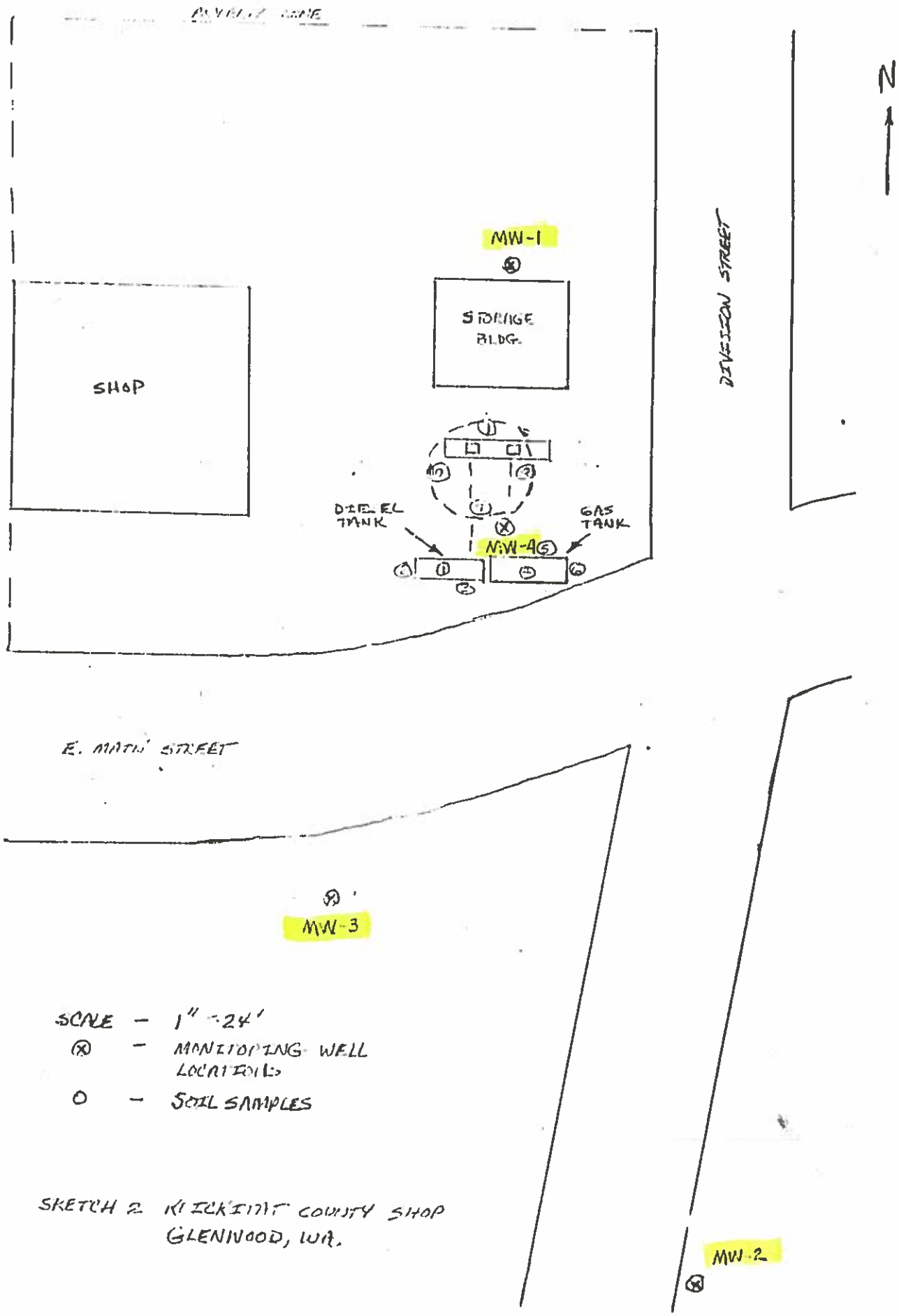
SKETCH 1B KLICKITAT COUNTY SHOP BICKLETON, WA.



SKETCH 1C KLICKITAT COUNTY SHOP - BICKLETON, WA



U.S. GOVERNMENT PRINTING OFFICE 1973—784—300/4

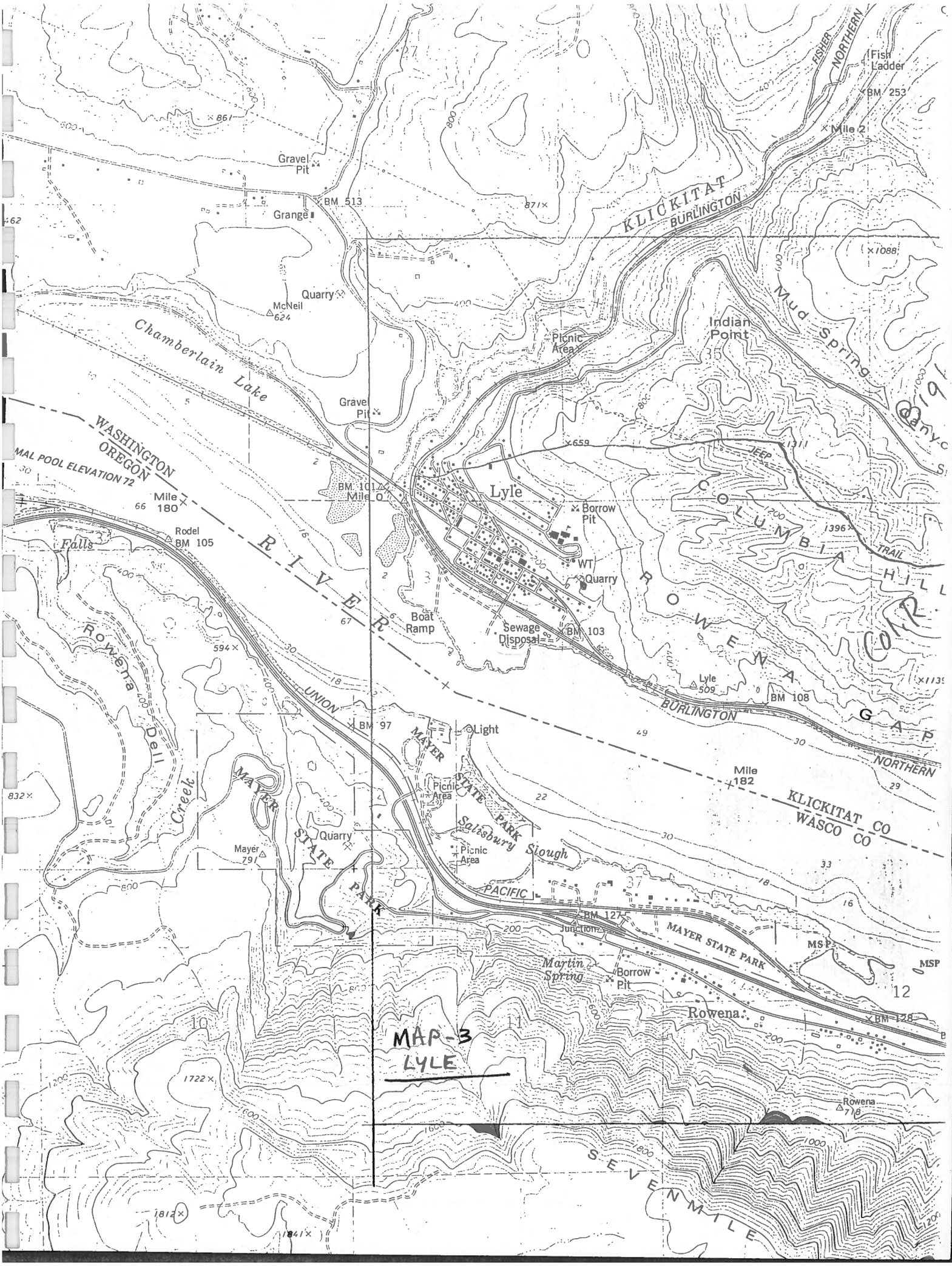


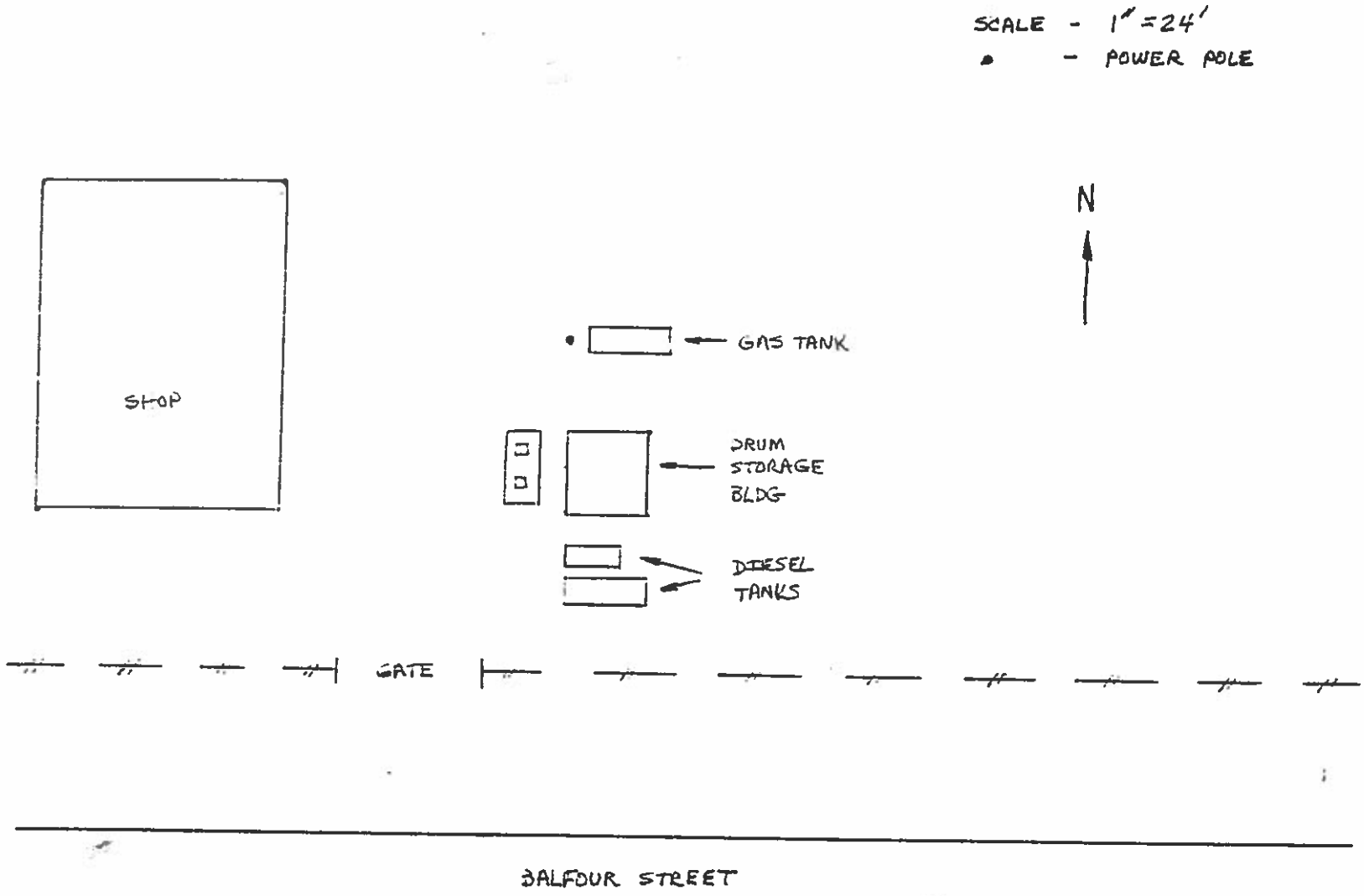
SCALE – 1" = 24'

⊗ – MONITORING WELL LOCATIONS

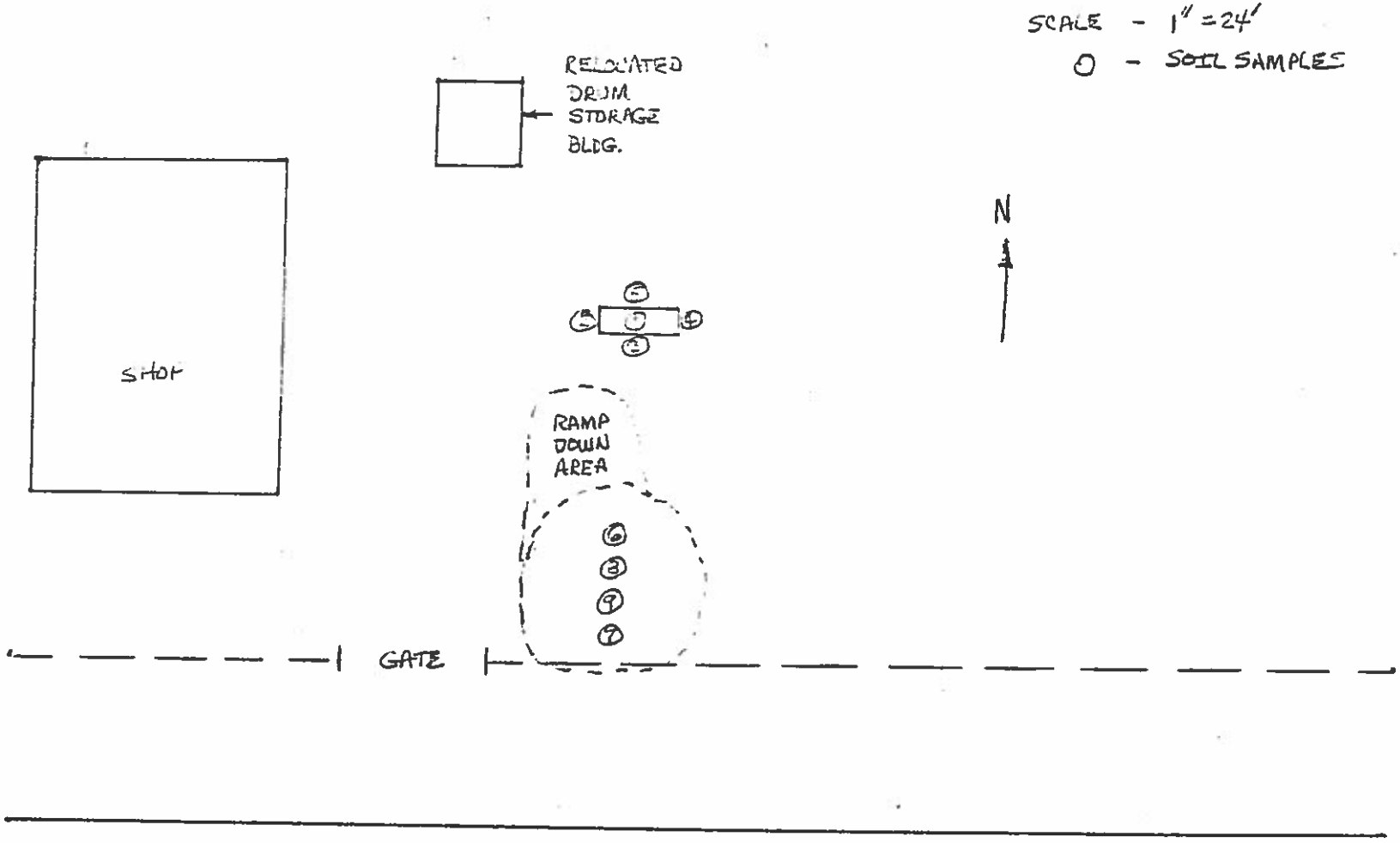
O – SOIL SAMPLES

SKETCH 2 KICKITAT COUNTY SHOP
GLENWOOD, WA.


Fish Ladder
BM 253
Mile 2
FISHER
NORTHERN
Gravel Pit
BM 513
Grange
KLICKITAT
BURLINGTON
Quarry
McNeil
624
Chamberlain Lake
Picnic Area
Indian Point
Mud Spring
Gravel Pit
WASHINGTON
OREGON
MAL POOL ELEVATION 72
Mile 180
BM 101
Mile 0
Lyle
Borrow Pit
JEEP
TRAIL
COLUMBIA HILL
Rodel
BM 105
Falls
RIVER
WT
Quarry
ROWENA GAP
Boat Ramp
Sewage Disposal
BM 103
Rowena Dell Creek
Lyle
509
BM 108
UNION
BURLINGTON
NORTHERN
BM 97
Light
MAYER STATE PARK
Mile 182
Picnic Area
KLICKITAT CO
WASCO CO
Quarry
Salisbury Slough
Mayer
791
Picnic Area
PACIFIC
BM 127
Junction
MAYER STATE PARK
MSP
Martin Spring
Borrow Pit
Rowena
BM 128
MAP-3
LYLE
Rowena
718
SEVENMILE



SKETCH 3 KLICKITAT COUNTY SHOP - LYLE



SKETCH 3A KLICKITAT COUNTY SHOP - LYLE

SOIL EXCAVATION

APPENDIX B

APPLICABLE DOE CHECKLISTS

UNDERGROUND STORAGE TANK
Installation Checklist

The purpose of this form is to certify the proper installation of underground storage tank (UST) systems. Installation shall be in accordance with Chapter 173.360 WAC. Washington State UST rules also require submittal of a Notification form (ECY 020-32) within 30 days of bringing any newly installed UST system into use.

This Installation Checklist shall be completed and signed by a **Licensed Installation and Retrofitting Supervisor.** The licensed supervisor shall be on site when all tank installation activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a **Service Provider.** If any of the activities in section 4 have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

All required tank and line tightness testing during and upon completion of UST system installation shall be separately certified by a licensed tightness testing supervisor on the Tightness Testing Checklist. All required installation and testing of cathodic protection systems upon completion of UST system installation shall be separately certified by a licensed cathodic protection supervisor on the Cathodic Protection Checklist. If the tank is pre-engineered for cathodic protection a corrosion expert is still required to design the field installation of any piping corrosion protection.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address within 30 days after completing the installation:

Underground Storage Tank Section, Department of Ecology, Mail Stop PV-11, Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street)

GOLDENDALE, (City) WA (State) 98620 (ZIP-Code) (P.O. Box)

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if other tanks have been registered at this site): 011504

Site/Business Name: KLICKITAT COUNTY SHOP - BICKLETON

Site Address: Goldendale Highway (Street) Klickitat (County)

Bickleton (City) Wa. (State) (ZIP-Code)

2. TANK INSTALLATION PERFORMED BY:

Firm: E.P. JOHNSON CONSTRUCTION, INC. License Number: S000151

Address: RT. 7, BOX 430-B (Street) UNION LOOP AND BRINKLEY ROAD (P.O. Box)

KENNEWICK, (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

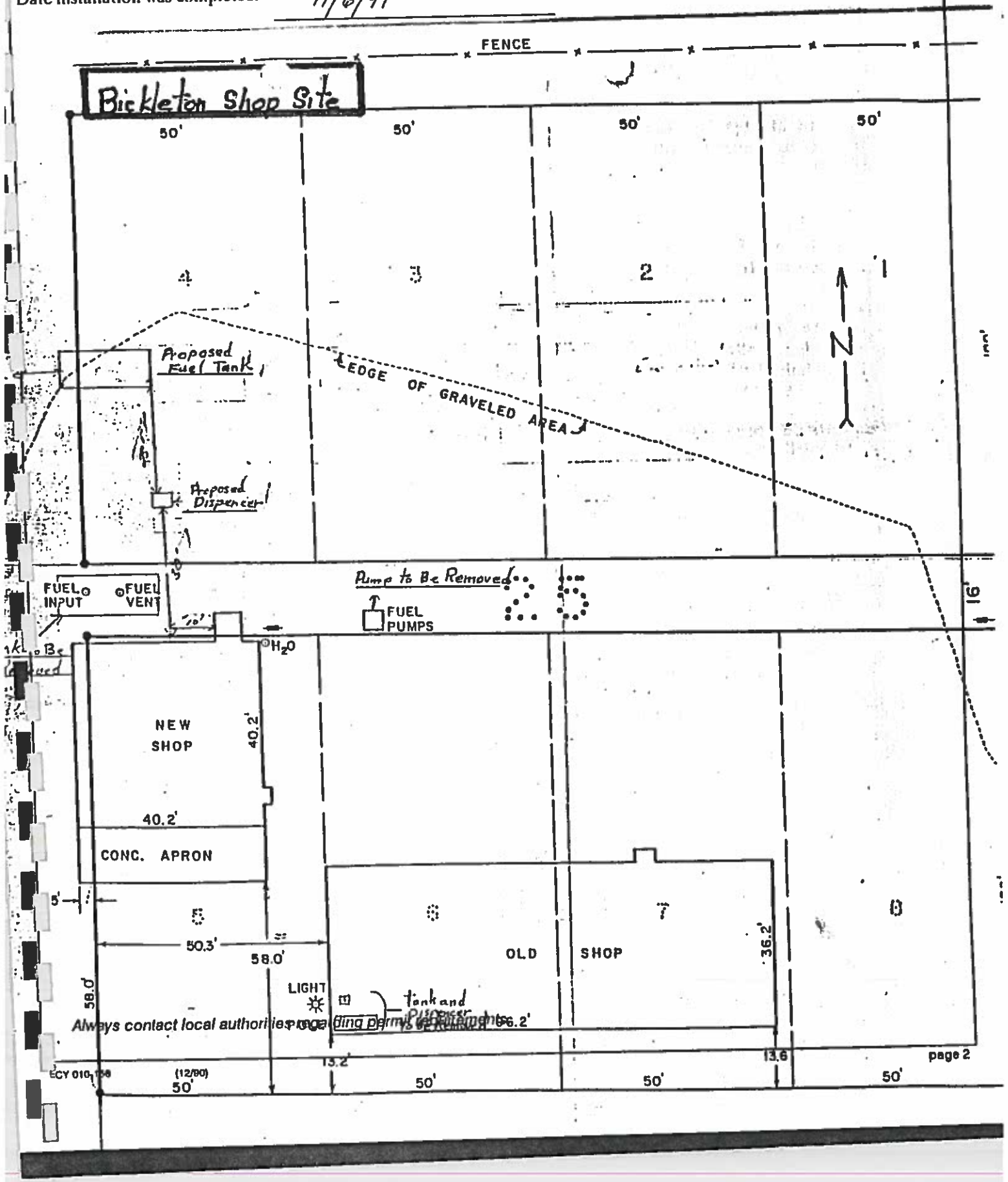
Licensed Supervisor: James A. Hamm Installation/Retrofitting License Number: W000605

ECY 010-156 (12/90)

3. AS-BUILT SITE PLAN

An as-built site plan of the tank and piping system installation must be shown in the space provided below. Show North arrow and nearest street(s). Indicate tank and piping dimensions and distances to adjacent structures and property lines. Show the location and configuration of the completed installation. Show adjacent structures. Indicate tank ID number for each tank shown. The tank ID should be the same tank ID number provided by the owner/operator on the Notification form.

Date installation was completed: 11/6/91



Always contact local authorities regarding permit requirements

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below *upon completion of work described in that item.*

A. Preinstallation Inspection and Testing	Yes	No	NA*
1. Have all damaged coating areas (holidays) been repaired with compatible coating according to tank manufacturer's recommendations?			✓
2. Have tank and piping fittings been checked for tightness?	✓		
3. Has tank been air (soap) tested?			✓
4. If double walled tank, have inner tank and interstitial space been pressure tested in accordance with manufacturer's recommendations for double walled tanks?			✓
5. If steel tank(s), has any plastic wrapping over anodes been removed?			✓

B. Installation			
1. Has bedding depth below tank(s) and piping been provided per code and manufacturer's requirements?			✓
2. Have cover depths above tank(s) and piping been provided per code and manufacturer's requirements?			✓
3. Have tanks been installed with spacing between tank(s) and sides of excavation per code and manufacturer's requirements?			✓
4. If concrete holddown pad is used, is bedding thickness between tank and holddown pad per code and manufacturer's requirements?			✓
5. Does bedding and backfill material used meet all code and manufacturer's requirements?	✓		
6. Has bedding and backfill material surrounding tank(s) and piping been placed per code and manufacturer's requirements?	✓		
7. If hold down straps are used on steel tank(s), is tank electrically isolated from holddown strap?			✓
8. If anchoring or supplemental holddown is required, has it been installed per code and manufacturer's requirements?			✓
9. Has tank vertical deflection been measured and found within limits specified by manufacturer?			✓
10. Has all piping been installed per code and piping manufacturer's recommendations?	✓		
11. Has all piping been pressure tested per code prior to backfilling and connection to the tank?	✓		
12. Has electrical isolation of flanged metallic piping connections been verified?			✓
13. Prior to backfilling over steel tank has electrical isolation from all metallic piping and equipment been verified?			✓
14. Has overfill prevention and spill containment equipment been installed per code and manufacturer's recommendations?	✓		
15. Have release detection systems been installed and calibrated per code and manufacturer's requirements?			✓

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed installation activities and to the best of my knowledge they have been conducted in compliance with all state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11-11-91
Date

Thomas A. Hamm
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

11/13/91
Date

Signature of Licensed Service Provider Firm Owner or Authorized Representative

11-21-91
Date

Signature of Tank Owner or Authorized Representative

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street) (P.O. Box)

GOLDENDALE, (City) WA (State) 98620 (ZIP-Code)

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if tank is registered): 011504

Site/Business Name: KLICKITAT COUNTY SHOP - BICKLETON

Site Address: Goldendale Highway (Street) Klickitat (County)

Bickleton (City) Wa. (State) (ZIP-Code)

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: THOMAS H. SUNDAY, JR.

Address: RT. 7, BOX 430-B UNION LOOP AND BRINKLEY ROAD (Street) (P.O. Box)

KENNEWICK (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011504
2. Year Installed: 1961
3. Tank capacity in gallons: 1500
4. Last substance stored: DIESEL

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

____ Investigate suspected release due to on-site environmental contamination

____ Investigate suspected release due to off-site environmental contamination

____ Extend temporary closure of UST system for more than 12 months

____ UST system undergoing change-in-service

____ UST system permanently closed-in-place

X UST system permanently closed with tank removed

____ Required by Ecology or delegated agency for UST system closed before December 22, 1988

____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*		X
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday J.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-26-91
Date

Steven Ray Howard
Signature of Tank Owner or Authorized Representative

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011504
2. Year installed: 1956
3. Tank capacity in gallons: 1000
4. Last substance stored: UNLEADED GASOLINE

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination
- ____ Extend temporary closure of UST system for more than 12 months
- ____ UST system undergoing change-in-service
- ____ UST system permanently closed-in-place
- X UST system permanently closed with tank removed
- ____ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	X	
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday Jr.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven Jay Nygaard
Signature of Tank Owner or Authorized Representative

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street) / P.O. Box

GOLDENDALE, (City) WA (State) 98620 (ZIP-Code)

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if tank is registered): 011505

Site/Business Name: KLICKITAT COUNTY SHOP - GLENWOOD

Site Address: NW Division + E. Main Streets (Street) Klickitat (County)

Glenwood (City) Wa. (State) (ZIP-Code)

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: THOMAS H. SUNDAY, JR.

Address: RT. 7, BOX 430-B (Street) UNION LOOP AND BRINKLEY ROAD (P.O. Box)

KENNEWICK (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year Installed: 1961
3. Tank capacity in gallons: 1000
4. Last substance stored: DIESEL

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination
- ____ Extend temporary closure of UST system for more than 12 months
- ____ UST system undergoing change-in-service
- ____ UST system permanently closed-in-place
- X UST system permanently closed with tank removed
- ____ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	X	X TJS 11/1/91
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday J.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven Ray Thomas
Signature of Tank Owner or Authorized Representative

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year installed: 1982
3. Tank capacity in gallons: 1000
4. Last substance stored: UNLEADED GASOLINE

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination
- ____ Extend temporary closure of UST system for more than 12 months
- ____ UST system undergoing change-in-service
- ____ UST system permanently closed-in-place
- X UST system permanently closed with tank removed
- ____ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initiated by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	X	
. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday Jr.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven Jay Nugent
Signature of Tank Owner or Authorized Representative

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street) (P.O. Box)

GOLDENDALE, (City) WA (State) 98620 (ZIP-Code)

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if tank is registered): 011507

Site/Business Name: KLICKITAT COUNTYSHOP - LYLE

Site Address: Balfour Street (Street) Klickitat (County)

Lyle (City) Wa. (State) (ZIP-Code)

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: THOMAS H. SUNDAY, JR.

Address: RT. 7, BOX 430-B (Street) UNION LOOP AND BRINKLEY ROAD (P.O. Box)

KENNEWICK (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011507
2. Year Installed: 1973
3. Tank capacity in gallons: 1000
4. Last substance stored: UNLEADED GASOLINE

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination
- ____ Extend temporary closure of UST system for more than 12 months
- ____ UST system undergoing change-in-service
- ____ UST system permanently closed-in-place
- X UST system permanently closed with tank removed
- ____ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*		X
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday Jr.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Signature of Tank Owner or Authorized Representative

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011507
2. Year installed: 1961
3. Tank capacity in gallons: 1000
4. Last substance stored: DIESEL

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

_____ Investigate suspected release due to on-site environmental contamination

_____ Investigate suspected release due to off-site environmental contamination

_____ Extend temporary closure of UST system for more than 12 months

_____ UST system undergoing change-in-service

_____ UST system permanently closed-in-place

X UST system permanently closed with tank removed

_____ Required by Ecology or delegated agency for UST system closed before December 22, 1988

_____ Other (describe): _____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*		X
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday J.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven Jay Nygaard
Signature of Tank Owner or Authorized Representative

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011507
2. Year installed: 1961
3. Tank capacity in gallons: 500
4. Last substance stored: DIESEL

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination
- ____ Extend temporary closure of UST system for more than 12 months
- ____ UST system undergoing change-in-service
- ____ UST system permanently closed-in-place
- X UST system permanently closed with tank removed
- ____ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	X	
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday J.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven [illegible]
Signature of Tank Owner or Authorized Representative

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a **Licensed Decommissioning Supervisor.** The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a **Service Provider.** If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street) (P.O. Box)

GOLDENDALE, (City) WA (State) 98620 (ZIP-Code)

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if tank is registered): 011504

Site/Business Name: KLICKITAT COUNTY SHOP - BICKLETON

Site Address: Goldendale Highway (Street) Klickitat (County)

Bickleton (City) Wa. (State) (ZIP-Code)

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: E.P. JOHNSON CONSTRUCTION, INC. License Number: S000151

Address: RT. 7, BOX 430-B UNION LOOP AND BRINKLEY ROAD (Street) (P.O. Box)

KENNEWICK (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

Licensed Supervisor: James A. Hawkins Decommissioning License Number: W000605

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011504
2. Year installed: 1961
3. Tank capacity in gallons: 1500
4. Date of last use: 8-30-91
5. Last substance stored: Diesel Fuel
6. Date of closure/change-in-service: 9-4-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11-11-91
Date

James A. Hanin
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

11/13/91
Date

Signature of Licensed Service Provider (firm) Owner or Authorized Representative

11-20-91
Date

Signature of Tank Owner or Authorized Representative

ECY 010-182 (12/90)

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011504
2. Year installed: 1956
3. Tank capacity in gallons: 1000
4. Date of last use: 8-30-91
5. Last substance stored: Gasoline unleaded
6. Date of closure/change-in-service: 9-4-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11-11-91
Date

Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

11/13/91
Date

Signature of Licensed Service Provider (firm) Owner or Authorized Representative

11-21-91
Date

Signature of Tank Owner or Authorized Representative

ECY 010-162 (12/90)

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a Licensed Decommissioning Supervisor. The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a Service Provider. If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street / P.O. Box)

GOLDENDALE, (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

Site ID Number (on invoice or available from Ecology if tank is registered): 011505

Site/Business Name: KLICKITAT COUNTYSHOP - GLENWOOD

Site Address: NW Division + E. Main Streets (Street) Klickitat (County)

Glenwood (City) Wa. (State) (ZIP-Code)

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: E.P. JOHNSON CONSTRUCTION, INC. License Number: S000151

Address: RT. 7, BOX 430-B UNION LOOP AND BRINKLEY ROAD (Street / P.O. Box)

KENNEWICK (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

Licensed Supervisor: James R. [illegible] Decommissioning License Number: W000605

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year installed: 1961
3. Tank capacity in gallons: 1000
4. Date of last use: 3-31-91
5. Last substance stored: Diesel Fuel
6. Date of closure/change-in-service: 9-5-91
7. Type of closure: Closure with Tank Removal ☑ In-place Closure ☐ Change-in-Service ☐
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes ☑ No ☐

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11-11-91
Date

James A. Hanin
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

11/13/91
Date

Signature of Licensed Service Provider firm Owner or Authorized Representative

11-21-91
Date

Signature of Tank Owner or Authorized Representative

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year installed: 1982
3. Tank capacity in gallons: 1000
4. Date of last use: 3-31-91
5. Last substance stored: Gasoline unleaded
6. Date of closure/change-in-service: 9-5-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

Date: 11-11-91

Signature of Licensed Supervisor: James A. Hom

5. ADDITIONAL REQUIRED SIGNATURES

Date: 11/13/91

Signature of Licensed Service Provider (not Owner or Authorized Representative): [illegible]

Date: 11-21-91

Signature of Tank Owner or Authorized Representative: [illegible]

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a **Licensed Decommissioning Supervisor.** The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a **Service Provider.** If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE
Street — P.O. Box

GOLDENDALE — City; WA — State; 98620 — ZIP-Code

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if tank is registered): 011507

Site/Business Name: KLICKITAT COUNTYSHOP - LYLE

Site Address: Balfour Street — Street; Klickitat — County

Lyle — City; Wa. — State; ZIP-Code

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: E.P. JOHNSON CONSTRUCTION, INC. License Number: S000151

Address: RT. 7, BOX 430-B — Street; UNION LOOP & BRINKLEY ROAD — P.O. Box

KENNEWICK — City; WA — State; 99337 — ZIP-Code

Telephone: (509) 735-2479

Licensed Supervisor: James A. Hawin

Decommissioning License Number: S000625

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011507
2. Year installed: 1973
3. Tank capacity in gallons: 1000
4. Date of last use: ~~9-30-91~~ 9-3-91 J.H. 11-11-91
5. Last substance stored: Gasoline unleaded
6. Date of closure/change-in-service: 9-6-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

Date: 11-11-91

Signature of Licensed Supervisor: James A. Harris

5. ADDITIONAL REQUIRED SIGNATURES

Date: 11/13/91

Signature of Licensed Service Provider (firm) Owner or Authorized Representative: [illegible]

Date: 11-20-91

Signature of Tank Owner or Authorized Representative: [illegible]

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011507
2. Year Installed: 1961
3. Tank capacity in gallons: 1000
4. Date of last use: 9-3-91
5. Last substance stored: Diesel Fuel
6. Date of closure/change-in-service: 9-6-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

Date: 11-11-91 Signature of Licensed Supervisor: James A. Harris

5. ADDITIONAL REQUIRED SIGNATURES

Date: 11/13/91 Signature of Licensed Service Provider (not Owner or Authorized Representative): [illegible]

Date: 11-21-91 Signature of Tank Owner or Authorized Representative: [illegible]

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011507
2. Year Installed: 1961
3. Tank capacity in gallons: 500
4. Date of last use: 9-3-91
5. Last substance stored: Diesel Fuel
6. Date of closure/change-in-service: 9-6-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-in-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-156).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

Date: 11-11-91

Signature of Licensed Supervisor: James A. Harris

5. ADDITIONAL REQUIRED SIGNATURES

Date: 11/13/91

Signature of Licensed Service Provider Firm Owner or Authorized Representative: [signature]

Date: 11-21-91

Signature of Tank Owner or Authorized Representative: [signature]

APPENDIX C

LABORATORY ANALYTICAL RESULTS

TABLE 1A SOIL SAMPLING RESULTS FOR BICKLETON

SAMPLE ID	MATRIX	TPH GAS ppm	TPH DIESEL ppm	TPH OILS ppm	BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	LEAD ppm	ADD. MISC ANALYSES
BF-1 & 2	SOIL	N/A	77	64	N/A	N/A	N/A	N/A	N/A	N/A
BF-3 & 4	SOIL	190 *	N/A	N/A	<50	840	130	280	N/A	N/A
BF-5 & 6	SOIL	N/A	N/A	22000 *	N/A	N/A	N/A	N/A	N/A	N/A
BF-7 & 8	SOIL	N/A	580 *	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-9 & 10	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-11 & 12	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-13 & 14	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-15 & 16	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-17 & 18	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-19	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-20 & 21	SOIL	390 *	N/A	N/A	<50	1300	400	1260	N/A	N/A
BF-22 & 23	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-24 & 25	SOIL	N/A	530 *	2100 *	N/A	N/A	N/A	N/A	N/A	HCID
BF-26 & 27	SOIL	N/A	1400 *	2400 *	N/A	N/A	N/A	N/A	N/A	HCID
BF-28	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-29 & 30	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BF-31	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BD-1-1	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BD-1-2 & 3	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BD-1-4 & 5	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
BG2-1	SOIL	N/A	N/A	52000 *	N/A	N/A	N/A	N/A	N/A	N/A
BG2-2	SOIL	N/A	N/A	7100 *	N/A	N/A	N/A	N/A	N/A	HCID
BG2-3 & 4	SOIL	N/A	N/A	2700 *	N/A	N/A	N/A	N/A	N/A	N/A
BG2-5 & 6	SOIL	N/A	N/A	520 *	N/A	N/A	N/A	N/A	N/A	N/A
BG2-7	SOIL	N/A	N/A	1800 *	N/A	N/A	N/A	N/A	N/A	HCID
B-1 & 2	SOIL	N/A	N/A	2300 *	N/A	N/A	N/A	N/A	N/A	8010
B-3 & 4	SOIL	N/A	N/A	15000 *	N/A	N/A	N/A	N/A	N/A	7000
B-5	SOIL	N/A	N/A	1900 *	N/A	N/A	N/A	N/A	N/A	N/A
B-6 & 7	SOIL	N/A	1400 *	1800 *	N/A	N/A	N/A	N/A	N/A	HCID
B-8 & 9	SOIL	180 *	240 *	1200 *	<50	<50	150	1050	N/A	HCID
B-10 & 11	SOIL	N/A	1300 *	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B-12 & 13	SOIL	99	N/A	N/A	<50	<50	160	940	N/A	N/A
B-14 & 15	SOIL	N/A	N/A	620 *	N/A	N/A	N/A	N/A	N/A	HCID
B-16	SOIL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	HCID
B-17	SOIL	110 *	N/A	N/A	<50	<50	210	130	<25	N/A
B-18 & 19	SOIL	<50	N/A	N/A	<50	<50	<50	<50	N/A	N/A
B-20 & 21	SOIL	70	N/A	N/A	<50	<50	<50	166	<25	N/A

* = RESULT EXCEEDS MTWCA CLEANUP LEVELS N/A = NOT ANALYZED

SEE ACTUAL LABORATORY REPORTS FOR ADDITIONAL ANAYLTICAL DATA

TABLE 1B WATER SAMPLING RESULTS FOR BICKLETON

SAMPLE ID	MATRIX	TPH GAS ppm	TPH DIESEL ppm	TPH OILS ppm	BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	LEAD ppb	ADD. MISC ANALYSES
BGW-1	WATER	2 *	5400 *	N/A	4	<1	1	12	N/A	HCID
BGW-2	WATER	<1	N/A	N/A	2	3	1	3	N/A	N/A
BGW-3	WATER	4 *	N/A	N/A	<1	<1	55 *	184 *	N/A	N/A
BW-T1	WATER	3 *	N/A	N/A	<1	10	17	23 *	N/A	N/A
BD-1-6	WATER	N/A	<0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* = RESULT EXCEEDS MTWCA CLEANUP LEVELS N/A = NOT ANALYZED

SEE ACTUAL LABORATORY REPORTS FOR ADDITIONAL ANAYLTICAL DATA

TABLE 1C
FINAL SOIL SAMPLING LOCATIONS - BICKLETON

Soil Sample ID.	Location Description.
BF-1	East wall of outside front excavation, south end.
BF-2	East wall of outside front excavation, north end.
BF-3	West wall of outside back excavation, south end, at floor interface.
BF-4	West wall of outside back excavation, north end, at floor interface.
BF-5	North wall of inside excavation, west end.
BF-6	North wall of inside excavation, east end.
BF-7	East wall of inside excavation, south end.
BF-8	East wall of inside excavation, north end.
BF-9	South wall of outside front excavation, east end.
BF-10	South wall of outside front excavation, west end.
BF-11	West wall of outside front excavation, south end.
BF-12	West wall of outside front excavation, north end.
BF-13	Corridor west wall, between front and back excavations, south end.
BF-14	Corridor west wall, between front and back excavations, north end.
BF-15	North wall of outside back excavation, west end, at the floor interface.
BF-16	North wall of outside back excavation, east end, at the floor interface.
BF-17	East wall of outside back excavation, north end, at the floor interface.
BF-18	East wall of outside back excavation, center, at the floor interface.
BF-19	East wall of outside back excavation, south end, at the floor interface.
BF-20	South wall of outside back excavation, east end, at the floor interface.
BF-21	South wall of outside back excavation, west end, at the floor interface.
BF-22	Outside back excavation floor, NE section.
BF-23	Outside back excavation floor, center east section.
BF-24	Inside excavation floor, NE section.
BF-25	Inside excavation floor, SW section.
BF-26	Outside front excavation floor, south section.
BF-27	Outside front excavation floor, north section.
BF-28	Outside back excavation floor, center west section.
BF-29	Outside back excavation floor, SE section.
BF-30	Outside back excavation floor, SW section.
BF-31	Test pit, front east of storage bldg., 9' deep.
BD-1-1	Beneath diesel tank, center.
BD-1-2	Diesel tank excavation, east wall.
BD-1-3	Diesel tank excavation, south wall.
BD-1-4	Diesel tank excavation, west wall.
BD-1-5	Diesel tank excavation, north wall.

TABLE 1C (Cont.)
INTERIM SOIL SAMPLING LOCATIONS - BICKLETON

Soil Sample ID.	Location Description.
BG2-1	Inside excavation extreme NW corner of sidewall.
BG2-2	Inside excavation floor NW section.
BG2-3	Inside excavation east wall, north end.
BG2-4	Inside excavation east wall, south end.
BG2-5	Outside front excavation south wall, east end.
BG2-6	Outside front excavation south wall, west end.
BG2-7	Inside excavation floor SW section beneath gas tank.
B-1 to B-21	Random samples taken from stockpiled contaminated B-soils.

TABLE 1D
FINAL WATER SAMPLING LOCATIONS - BICKLETON

Water Sample ID.	Location Description.
BGW-1	Outside front excavation small liquid pocket between soil samples BF-26 and BF-27, prior to complete removal of liquid.
BGW-2	Outside back excavation sample collection pool at west wall between soil samples BF-3 and BF-4.
BGW-3	Outside back excavation sample collection pool at floor, north of soil sample BF-29.
BW-T1	Sample collection pool at base of test pit 1, prior to excavation in back area.
BD-1-6	Sample collection pool from liquid beneath diesel tank.

Sample Results

TABLE 2A GLENWOOD SOIL SAMPLING RESULTS

SAMPLE ID	MATRIX	TPH GAS ppm	TPH DIESEL ppm	TPH OILS ppm	BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	LEAD ppm	ADD. MISC ANALYSES
G-1	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
G-2 & 3	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
G-4	SOIL	<50	N/A	N/A	N/A	N/A	N/A	N/A	42	HCID
G-5 & 6	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
G-7 & 8	SOIL	1000 *	N/A	N/A	<50	2200	400	8400	N/A	N/A
G-9 & 10	SOIL	790 *	N/A	N/A	<50	1500	150	964	N/A	N/A
G-11,12,13	SOIL	2000 *	N/A	N/A	<50	3000	930	41000 *	<20	N/A
GWELL-1	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
GWELL-2	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
GWELL-3	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
GWELL-4	SOIL	<50	N/A	N/A	<50	84	<50	157	N/A	N/A

TABLE 2B GLENWOOD WATER SAMPLING RESULTS

SAMPLE ID	MATRIX	TPH GAS ppm	TPH DIESEL ppm	TPH OILS ppm	BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	LEAD ppb	ADD. MISC ANALYSES
GW-1	WATER	110 *	N/A	N/A	340 *	1200 *	88 *	2480 *	N/A	N/A
GWELL-1	WATER	<1	N/A	N/A	<1	<1	<1	<1	N/A	N/A
GWELL-2	WATER	<1	N/A	N/A	<1	<1	<1	<1	N/A	N/A
MW-3	WATER	<1	N/A	N/A	<1	<1	<1	<1	N/A	N/A
MW-4	WATER	4 *	N/A	N/A	15 *	22	<1	58 *	N/A	N/A

* = RESULT EXCEEDS MTWCA CLEANUP LEVELS N/A = NOT ANALYZED

SEE ACTUAL LABORATORY REPORTS FOR ADDITIONAL ANAYLTICAL DATA

TABLE 2C
FINAL SOIL SAMPLING LOCATIONS - GLENWOOD

Soil Sample ID.	Location Description.
G-1	Beneath diesel tank.
G-2	Tank excavation west wall.
G-3	Tank excavation south wall.
G-4	Beneath gas tank.
G-5	Tank excavation north wall.
G-6	Tank excavation east wall.
G-7	PCS excavation, south wall at groundwater interface.
G-8	PCS excavation, east wall at groundwater interface.
G-9	PCS excavation, north wall at groundwater interface.
G-10	PCS excavation, west wall at groundwater interface.
G-11 to G-13	Random samples from contaminated soil stockpile.
GWELL-1	Soil sample, 15' deep, from cuttings of MW-1.
GWELL-2	Soil sample, 15' deep, from cuttings of MW-2.
GWELL-3	Soil sample, 15' deep, from cuttings of MW-3.
GWELL-4	Soil sample, 15' deep, from cuttings of MW-4.

TABLE 2D
FINAL WATER SAMPLING LOCATIONS - GLENWOOD

Water Sample ID.	Location Description.
GW-1	Water table sample from initial excavation.
GWELL-1	Groundwater sample of MW-1.
GWELL-2	Groundwater sample of MW-2.
MW-3	Groundwater sample of MW-3.
MW-4	Groundwater sample of MW-4.

TABLE 3A LYLE SOIL SAMPLING RESULTS

SAMPLE ID	MATRIX	TPH GAS ppm	TPH DIESEL ppm	TPH OILS ppm	BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	LEAD ppm	ADD. MISC ANALYSES
L-1	SOIL	N/A	N/A	2700 *	N/A	N/A	N/A	N/A	N/A	HCID
L-2 & 3	SOIL	N/A	N/A	61	N/A	N/A	N/A	N/A	N/A	HCID
L-4 & 5	SOIL	<20	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID
L-6	SOIL	N/A	1500 *	N/A	N/A	N/A	N/A	N/A	N/A	HCID
L-7	SOIL	N/A	1400 *	N/A	N/A	N/A	N/A	N/A	N/A	HCID
L-8	SOIL	N/A	N/A	13000 *	N/A	N/A	N/A	N/A	N/A	HCID
L-9	SOIL	N/A	<40	N/A	N/A	N/A	N/A	N/A	N/A	HCID

TABLE 3B LYLE WATER SAMPLING RESULTS

SAMPLE ID	MATRIX	TPH GAS ppm	TPH DIESEL ppm	TPH OILS ppm	BENZENE ppb	TOLUENE ppb	ETHYL-BENZENE ppb	XYLENE ppb	LEAD ppb	ADD. MISC ANALYSES
LW-1	WATER	N/A	<0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* = RESULT EXCEEDS MTWCA CLEANUP LEVELS N/A = NOT ANALYZED

SEE ACTUAL LABORATORY REPORTS FOR ADDITIONAL ANAYLTICAL DATA

TABLE 3C
FINAL SOIL SAMPLING LOCATIONS - LYLE

Soil Sample ID.	Location Description.
L-1	Beneath gas tank.
L-2	Gas tank excavation west wall.
L-3	Gas tank excavation south wall.
L-4	Gas tank excavation east wall.
L-5	Gas tank excavation north wall.
L-6 *	Soil sample 15' deep north side of excavation.
L-7 *	Soil sample 15' deep south side of excavation.
L-8 *	Bucket soil sample 30' deep north side of excavation.
L-9 *	Bucket soil sample 30' deep south side of excavation.
*	Samples also representative of contaminated soil stockpile.

TABLE 3D
FINAL WATER SAMPLING LOCATIONS - LYLE

Water Sample ID.	Location Description.
LW-1	Sample from city backup water well.

Date of Report: September 11, 1991
Sample Submitted: September 10, 1991
Lab Traveler: 09-026
Project: Klickitat County

RESULTS OF ANALYSES OF ENVIRONMENTAL SAMPLE FOR TOTAL PETROLEUM HYDROCARBONS BY IR (EPA METHOD 418.1) (Extracted using EPA Method 3550)

Sample #	Matrix	Dilution Factor	Total Petroleum Hydrocarbons (ppm)
B62-1	soil	500	52,000
Quality Assurance			
Method Blank		5	<25
B62-1 (Duplicate)	soil	500	47,000

Date of Report: September 11, 1991
Sample Submitted: September 10, 1991
Lab Traveler: 09-026
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
B62-1	soil	25%

E.F. JOHNSON CONSTRUCTION, INC.
R.. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

09-026

09-026

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 Court NE Redmond WA. 98052
TELEPHONE: (206) 820 4551
CONTACT: Steve Loague

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
BG2-1	NW Corner of Bldg.	4 oz glass	9/9/91	1600			X			418.1	H.

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 9/9/91 1855
Received by: Pony Express #3942370

2. Relinquished by: E. Hertz
Received by: J. [illegible] 9/9/91 1845

3. Relinquished by: J. [illegible] 9/9/91 2030
Received by: [illegible] 9/10/91 0350

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES: DATE/TIME:

Date of Report: September 18, 1991
Samples Submitted: September 10, 1991
Lab Traveler: 09-027
Project: Klickitat County

HYDROCARBON INDENTIFICATION BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
BD-1-1	Soil	
	<20 ppm Gasoline <40 ppm Deisel Fuel	89%
BD-1-2/BD-1-3 (Composite)	Soil	
	<20 ppm Gasoline <40 ppm Deisel Fuel	93%
BD-1-4/BD-1-5 (Composite)	Soil	
	<20 ppm Gasoline <40 ppm Deisel Fuel	91%
G-1	Soil	
	<20 ppm Gasoline <40 ppm Deisel Fuel	94%
G-2/G-3 (Composite)	Soil	
	<20 ppm Gasoline <40 ppm Deisel Fuel	97%
G-5/G-6 (Composite)	Soil	
	<20 ppm Gasoline <40 ppm Deisel Fuel	94%
Method Blank	<20 ppm Gasoline <40 ppm Deisel Fuel	100%

Date of Report: September 18, 1991
Samples Submitted: September 10, 1991
Lab Traveler: 09-027
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)
BD-1-6	water	0.04	<0.8
Quality Assurance			
Method Blank		0.04	<0.8
09-028-1	water	0.04	<0.8
09-028-1 (Duplicate)	water	0.04	<0.8

Date of Report: September 18, 1991
Samples Submitted: September 10, 1991
Lab Traveler: 09-027
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR GASOLINE BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Gasoline (ppm)	Surrogate Recovery
G-4	soil	50	<50	93%
Quality Assurance				
Method Blank		1	<1	91%
09-029-2	soil	50	<50	91%
09-029-2 (Duplicate)	soil	50	<50	90%

Date of Report: September 18, 1991
Samples Submitted: September 10, 1991
Lab Traveler: 09-027
Project: Klickitat County

Analysis for Lead
Using EPA Method 7421

Sample#	G-4
Matrix	soil
Units	ppm
Analyte:	
Lead	42

Quality Assurance

Sample #	G-4 (Dup.)	Matrix Spike	M. Spike (Dup.)	Amount Spiked	Method Blank
Matrix	soil	soil	soil		regeants
Units	ppm			ppm	ppm
Analyte					
Lead	42	100%	100%	5	<1

Date of Report: September 18, 1991
Samples Submitted: September 10, 1991
Lab Traveler: 09-027
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
BD1-1	soil	10%
BD1-2/BD1-3 (Composite)	soil	17%
BD1-4/BD1-5 (Composite)	soil	22%
G-1	soil	11%
G-2/G-3 (Composite)	soil	27%
G-4	soil	25%
G-5/G-6 (Composite)	soil	31%

B.F. JOHNSON CONSTRUCTION, INC.
P.O. Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

09-027

Project: Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 Court N.E. Redmond, WA. 98052
TELEPHONE: (206) 820 4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: TOM SUNDAY

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
	BD1-1	Beneath Diesel Tank	4oz. Glass	9/4/91	1000			X			WHCID	L
COMP.	BD1-2	Diesel Side wall	"	9/4/91	1005			X			WHCID	L
	BD1-3	Diesel Side wall	"	9/4/91	1010			X			WHCID	L
COMP.	BD1-4	Diesel Side wall	"	9/4/91	1015			X			WHCID	L
	BD1-5	Diesel Side wall	"	9/4/91	1020			X			WHCID	L
	BD1-6	Beneath Diesel tank	1l GLASS	9/4/91	1030				X		8015D	L
	G-1	Beneath Diesel Tank	4oz. Glass	9/5/91	0900			X			WHCID	L
Comp.	G-2	Diesel Side wall	"	9/5/91	0905			X			WHCID	L
	G-3	Diesel Side wall	"	9/5/91	0910			X			WHCID	L
	G-4	Beneath Gas Tank	"	9/5/91	1005			X			8015G, 7421	L
Comp.	G-5	Gas Side wall	"	9/5/91	1010			X			WHCID	L
	G-6	Gas Side wall	"	9/5/91	1015			X			WHCID	L

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: (BD1-1 through BD1-5 if WHCID > 50 ppm Run 8015D) (G-1 through G-3 if WHCID > 50 ppm run 8015D, G-5 and G-6 compos. if WHCID > 50, run 8015G + BTEX
(Please composite samples where indicated)

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 9/9/91 0830 0700 HS
Received by: Pony Express # 3930347

2. Relinquished by: E. Hunter
Received by: J. Thy 9/9/91 1840

3. Relinquished by: J. Thy 9/9/91 2030
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES: DATE/TIME:

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	G-7/G-8 (composite)	G-9/G-10 (composite)	G-11/G-12/G-13 (composite)	GW-1
Matrix	Soil	Soil	Soil	Water
Dilution Factor	50	50	50	50
Units	ppb	ppb	ppb	ppb
Analyte:				
Benzene	<50	<50	<50	340
Toluene	2,200	1,500	3,000	1,200
Ethylbenzene	400	150	930	88
m- & p-Xylene	5,200[J]	900	24,000	1,700
o-Xylene	3,200	64[J]	17,000	780
Units	ppm	ppm	ppm	ppm
TPH/Gas	1,000	790	2,000	110[B]
Surr. Recovery	96%	95%	98%	96%

B-Concentration exceeded calibration limit. Inconsistent results due to free product in the sample.

J-The value indicated was below the practical quantitation limit.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR SOIL

Batch Sample #:	Method Blank	09-036-1 Original	09-036-1 Duplicate	09-036-1 Matrix Spike @ 1000 ppb	09-036-1 M Spike. Duplicate
Dil.Fact.	1	50	50		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<50	<50	92%	93%
Toluene	<1	<50	<50	90%	91%
Ethylbenzene	<1	<50	<50	92%	92%
m- & p-Xylene	<1	<50	<50	90%	90%
o-Xylene	<1	<50	<50	93%	94%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<50	<50	NA	NA
Surr. Recovery	97%	97%	100%	99%	100%

NA-Not Analyzed.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR WATER

Batch Sample #:	Method Blank	09-045-11 Original	09-045-11 Duplicate	09-045-11 Matrix Spike @ 20 ppb	09-045-11 M Spike. Duplicate
Dil.Fact.	1	1	1		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<1	<1	79%	94%
Toluene	<1	<1	<1	77%	91%
Ethylbenzene	<1	<1	<1	78%	91%
m- & p-Xylene	<1	<1	<1	75%	89%
o-Xylene	<1	<1	<1	80%	93%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<1	<1	NA	NA
Surr. Recovery	88%	88%	92%	95%	98%

NA-Not Analyzed.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

HYDROCARBON INDENTIFICATION BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
BG-2-2	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Lubricant range. (>C24)	A
BG-2-7	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Lubricant range. (>C24)	100%
L-6	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Diesel Fuel range (C11-C24), and in the Lubricant range. (>C24)	100%
L-7	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Diesel Fuel range (C11-C24), and in the Lubricant range. (>C24)	A
L-8	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Lubricant range. (>C24)	A

A-Surrogate Recovery data not reported due to Hydrocarbon interfernces in the sample.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

HYDROCARBON INDENTIFICATION BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
L-1	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Lubricant range. (>C24)	A
L-2/L-3 (Composite)	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Lubricant range. (>C24)	100%
L-4/L-5 (Composite)	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	91%
L-9	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Lubricant range. (>C24)	A
Method Blank	<20 ppm Gasoline <40 ppm Diesel Fuel	95%

A-Surrogate Recovery data not reported due to Hydrocarbon interfernces in the sample.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

RESULTS OF ANALYSES OF ENVIRONMENTAL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (EPA METHOD 418.1) (Extracted using EPA Method 3550)

Sample #	Matrix	Dilution Factor	Total Petroleum Hydrocarbons (ppm)
BG-2-2	Soil	200	7,100
BG-2-3/BG-2-4 (composite)	Soil	50	2,700
BG-2-5/BG-2-6 (composite)	Soil	5	520
BG-2-7	Soil	50	1,800
L-8	Soil	500	13,000
B-1/B-2 (composite)	Soil	50	2,300
B-3/B-4 (composite)	Soil	500	15,000
B-5	Soil	50	1,900
L-1	Soil	50	2,700
L-2/L-3 (composite)	Soil	5	61
Quality Assurance			
Method Blank			<25
BG-2-2 (Duplicate)	Soil	200	12,000

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)	Surrogate Recovery (%)
L-6[A]	Soil	20	1,500	B
L-7[A]	Soil	20	1,400	B
L-9[A]	Soil	20	<40	B
Quality Assurance				
Method Blank			<40	110%
09-050-2	Soil	2	100	100%
09-050-2 (Duplicate)	Soil	2	124	130%
(Matrix Spike) Spiked @ 200 ppm Recovery			130%	96%
(M.S. Duplicate) Spiked @ 200 ppm Recovery			150%	98%

A-Chromatogram indicates the presence of Heavy Hydrocarbons in the Oil range.

B-Surrogate recovery data not available due to the necessary dilution of the sample.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

Analysis for Selected Metals Using Toxic Characteristics Leaching Extractions in Accordance with EPA Methods 7000

Sample#	B-3
Matrix	Soil
Analyte:	
Arsenic	<2
Barium	<5
Cadmium	<0.2
Chromium	<0.5
Lead	<1
Mercury	<0.1
Selenium	<0.5
Silver	<0.1

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

Analysis for Selected Metals using Toxic Characteristics Leaching Extractions in Accordance with EPA Method 7000

Quality Assurance

Sample #	09-035-1 (Original)	09-035-1 (Dup.)	Matrix Spike	Method Blank
Matrix	Soil	Soil	Soil	
Analyte				
Arsenic	<2	<2	100%	<2
Barium	<5	<5	100%	<5
Cadmium	<0.2	<0.2	100%	<0.2
Chromium	<0.5	<0.5	80%	<0.5
Lead	<1	<1	108%	<1
Mercury	<0.1	<0.1	87%	<0.1
Selenium	<0.5	<0.5	78%	<0.5
Silver	<0.1	<0.1	100%	<0.1

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

Analysis for Lead
Using EPA Method 7421

Sample#	G-12
Matrix	soil
Units	ppm
Analyte:	
Lead	<20

Quality Assurance

Batch Sample #	09-071-1 (Original)	09-071-1 (Dup.)	Matrix Spikes	Amount Spiked	Method Blank
Matrix	soil	soil	soil		
Units	ppm	ppm		ppm	ppm
Analyte					
Lead	<20	<20	98/100%	10	<20

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

ANALYSIS OF ENVIRONMENTAL SAMPLES
FOR CHLORINATED ORGANIC COMPOUNDS
BY EPA METHOD 601/8010
Results Reported as ng/g (ppb)

Sample #:	B-1/B-2
Matrix	Soil
Dilution Factor	50
Analyte:	
1,1-Dichloroethylene	<50
Methylene Chloride	<50
t-Dichloroethylene	<50
1,1-Dichloroethane	<50
Chloroform	<50
1,1,1-Trichloroethane	<50
Carbon Tetrachloride	<50
1,2-Dichloroethane	<50
Trichloroethylene	<50
Tetrachloroethylene	<50
Tetrachloroethane	<50
Surrogate Recovery	100%

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

ANALYSIS OF ENVIRONMENTAL SAMPLES
FOR CHLORINATED ORGANIC COMPOUNDS
BY EPA METHOD 601/8010
Results Reported as ng/g (ppb)

Quality Assurance

Sample # / Analyte:	Method Blank	B-1/B-2 (Dup)	Matrix Spike @ 1000 ppb	M. Spike Duplicate
1,1-Dichloroethylene	<1	<50	NA	NA
Methylene Chloride	<1	<50	82%	85%
t-Dichloroethylene	<1	<50	NA	NA
1,1-Dichloroethane	<1	<50	NA	NA
Chloroform	<1	<50	NA	NA
1,1,1-Trichloroethane	<1	<50	87%	84%
Carbon Tetrachloride	<1	<50	NA	NA
1,2-Dichloroethane	<1	<50	85%	78%
Trichloroethylene	<1	<50	86%	82%
Tetrachloroethylene	<1	<50	84%	85%
Tetrachloroethane	<5	<250	NA	NA
Surrogate Recovery	100%	95%	93%	96%

NA-Not Analyzed.

Date of Report: September 30, 1991
Samples Submitted: September 13, 1991
Lab Traveler: 09-040
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
G-7/G-8	Soil	8%
G-9/G-10	Soil	11%
BG-2-2	Soil	25%
BG-2-3/BG-2-4	Soil	22%
BG-2-5/BG-2-6	Soil	16%
BG-2-7	Soil	8%
L-6	Soil	6%
L-7	Soil	6%
L-8	Soil	6%

E.F. JOHNSON CONSTRUCTION, INC.
R.I.T. Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

09-040

Project # Klickitat County
Page 1 of 2

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. Redmond WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
COMP.	G-7	South wall	4 oz glass	9/11	1100			X			8015G+BTEX	M
	G-8	East wall	"	9/11	1105			X				
COMP	G-9	North wall	"	9/11	1110			X			8015G+BTEX	M
	G-10	West wall	"	9/11	1115			X				
	GW-1	Water at Bottom	2 EA. 40ml VOA	9/11	1125				X		8015G+BTEX	H
	BG2-2	NW corner floor	4 oz glass	9/10	1500			X			HCID	L
comp.	BG2-3	NE wall	"	9/10	1505			X			418.1	L
	BG2-4	S East wall	"	9/10	1510			X				L
comp.	BG2-5	S wall	"	9/10	1515			X			418.1	L
	BG2-6	W wall	"	9/10	1520			X				L
	BG2-7	Beneath Gas tank	"	9/10	1525			X			WHCID	L
	L-6	Diesel Ex North		9/12	1330			X			WHCID	L
	L-7	Diesel Ex South		9/12	1335			X			WHCID	L
	L-8	PCS Pile	"	9/12	1345			X			WHCID (8015D)	M

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Please composite samples where indicated

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 9/12/91 1355
Received by: James A. Harvin 9/12/91 1355

2. Relinquished by: James A. Harvin 9-12-91 1355
Received by: Pony Express 3942371

3. Relinquished by:
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY: Stephen Loague
NUMBER OF SAMPLES 28 DATE/TIME: 9/13/91 0830

E F JOHNSON CONSTRUCTION, INC.
R.. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

09-040

Project # Klickitat
Page 2 of 2

LABORATORY: ASI
ADDRESS: 12277 134 court N.E. Redmond WA. 98052
TELEPHONE: 206 820 4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
comp	B-1		4oz glass	9/10	1535			X			418.1, 8010	M
	B-2	Sample from	"	9/10	1540			X				
comp.	B-3	Contamination	"	9/10	1545			X			418.1, TCLP	M
	B-4	Pile	"	9/10	1550			X				
	B-5		"	9/10	1555			X			418.1	M
	G-11	Samples from	"	9/11	1245			X			8015G+BTEX	M
comp.	G-12	Contamination	"	9/11	1250			X			7421 Pb	L
	G-13	Pile	"	9/11	1255			X			8015G+BTEX	M
	L-1	Beneath gas tank	"	9/12	1000			X			WHCID	L
comp.	L-2	West wall	"	9/12	1005			X			WHCID	L
	L-3	South wall	"	9/12	1010			X				
comp.	L-4	East wall	"	9/12	1015			X			WHCID	L
	L-5	North wall	"	9/12	1020			X				
	L-9	RCS Pile	"	9/12	1345			X			WHCID (80(50)	M

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Composite G-11 and G-13

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by:
Received by:

2. Relinquished by:
Received by:

3. Relinquished by:
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES 29 DATE/TIME 9/13/91 0830

Date of Report: September 19, 1991
Sample Submitted: September 17, 1991
Lab Traveler: 09-047
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLE FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)
LW-1	water	0.04	<0.8
Quality Assurance			
Method Blank		0.04	<0.8
LW-1 (Duplicate)	water	0.04	<0.8

E.F. JOHNSON CONSTRUCTION, INC.
P.O. Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

09-047

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 Court N.E. Redmond, WA. 98052
TELEPHONE: 206 820 4551
CONTACT: Steve Loague

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
LW-1	South GW Well	1 l glass	9/13/91	1340				X		WHCID (8015D)	L

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas A. Sunday Jr. 9/16/91 1635
Received by: Pony Express # 3942372

2. Relinquished by:
Received by: E. Hartie

3. Relinquished by: E. Hartie
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES: ____ DATE/TIME:

Date of Report: October 7, 1991
Samples Submitted: September 27, 1991
Lab Traveler: 09-082
Project: Klickitat County

HYDROCARBON INDENTIFICATION BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
T6-9	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Gasoline range (C6-C11), and in the Lubricant range (C24).	100%
Method Blank	<20 ppm Gasoline <40 ppm Diesel Fuel	104%

Date of Report: October 7, 1991
Samples Submitted: September 27, 1991
Lab Traveler: 09-082
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	BW-T1
Matrix	Water
Dilution Factor	1
Units	ppb
Analyte:	
Benzene	<1
Toluene	10
Ethylbenzene	17
m- & p-Xylene	19
o-Xylene	4
Units	ppm
TPH/Gas	3[J]
Surr. Recovery	85%

J-The value indicated was below the practical quantitation limit.

Date of Report: October 7, 1991
Samples Submitted: September 27, 1991
Lab Traveler: 09-082
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL

Batch Sample #:	Method Blank	09-087-7 Original	09-087-7 Duplicate	09-087-7 Matrix Spike @ 20 ppb	09-087-7 M Spike. Duplicate
Matrix		water	water	water	water
Dil.Fact.	1	1	1		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<1	<1	93%	96%
Toluene	<1	<1	<1	90%	94%
Ethylbenzene	<1	<1	<1	91%	98%
m- & p-Xylene	<1	<1	<1	91%	99%
o-Xylene	<1	<1	<1	91%	96%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<1	<1	NA	NA
Surr. Recovery	99%	96%	90%	99%	94%

NA-Not Analyzed.

CHAIN OF CUSTODY RECORD

09 082

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

09-082

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
T6-9	Pit #6 at 9'	4oz glass	9/25	1500			X			HCID	M
BW-T1	Pit #1 water	40ml glass VOA	9/25	1530				X		8015G+BTEX	M
BW-T1	Pit #1 water	40ml glass VOA	9/25	1530				X		8015G+BTEX	M

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 9/25/91
   Received by:
2. Relinquished by: Edith Hartte
   Received by: Pony Express #3942373
3. Relinquished by: Edith Hartte
   Received by:
4. Relinquished by:
   Received by:
5. Relinquished by:
   Received by:
6. LABORATORY RECIEPT BY:
   NUMBER OF SAMPLES: DATE/TIME:

EPJ.005 Rev.0

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
B-6/B-7 (Composite)	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Diesel fuel(C11-C24), and in the Lubricant range(>C24).	A
B-8/B-9 (Composite)	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Gasoline range(C6-C11) in the Diesel fuel range(C11-C24) and in the Lubricant range(>C24).	99%
Method Blank (Soil)	<20 ppm Gasoline <40 ppm Diesel Fuel	98%
BGW-1	Water	
	The chromatogram indicates the presence of hydrocarbons in the Diesel fuel range(C11-C24).	
Method Blank (Water)	<0.4 ppm Gasoline <0.8 ppm Diesel Fuel	
MS2S	Product	
	The chromatogram indicates the presence of hydrocarbons in the Gasoline range(C6-C11) and in the Lubricant range(>C24).	

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)	Surrogate Recovery (%)
B-6/B-7[A] (composite)	Soil	20	1,400	C
B-8/B-9[A,B] (composite)	Soil	2	240	130%
Quality Assurance				
Method Blank			<40	112%
10-005-1	Soil	2	1,300	130%
10-005-1 (Duplicate)	Soil	2	1,200	131%

A-Hydrocarbons in the Heavy Oil range present in the sample.

B-Hydrocarbons in the Gasoline range present in the sample.

C-Surrogate recovery data not available due to the necessary dilution of the sample.

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)
BGW-1[A]	Water	0.04	5400
Quality Assurance			
Method Blank		0.04	<0.8
BGW-1[A]	Water	0.04	5,400
BGW-1[A] (Duplicate)	Water	0.04	>12,000

A-Extreme difference in sample and duplicate result due to free product in the sample.

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

RESULTS OF ANALYSES OF ENVIRONMENTAL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (EPA METHOD 418.1) (Extracted using EPA Method 3550)

Sample #	Matrix	Dilution Factor	Total Petroleum Hydrocarbons (ppm)
B-6/B-7 (composite)	Soil	20	1,800
B-8/B-9 (composite)	Soil	15	1,200
Quality Assurance			
Method Blank			<25
09-089-1	Soil	5	<25
09-089-1 (Duplicate)	Soil	5	<25

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	B-8/B-9 (composite)	BGW-1
Matrix	Soil	Water
Dilution Factor	50	1
Units	ppb	ppb
Analyte:		
Benzene	<50	4
Toluene	<50	<1
Ethylbenzene	150	1
m- & p-Xylene	570	6
o-Xylene	480	6
Units	ppm	
TPH/Gas	180[J]	2[J]
Surr. Recovery	76%	75%

J-The value indicated was below the practical quantitation limit.

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR SOIL

Sample #:	Method Blank	09-092-5 Original	09-092-5 Duplicate	09-092-5 Matrix Spike @ 1000 ppb	09-092-5 M Spike. Duplicate
Dil.Fact.	1	50	50		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<50	<50	98%	96%
Toluene	<1	72	55	94%	93%
Ethylbenzene	<1	68	61	95%	94%
m- & p-Xylene	<1	340	310	93%	93%
o-Xylene	<1	130	110	95%	94%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<50	<50	NA	NA
Surr. Recovery	98%	83%	91%	94%	89%

NA-Not Analyzed.

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR WATER

Sample #:	Method Blank	09-087-7 Original	09-087-7 Duplicate	09-087-7 Matrix Spike @ 20 ppb	09-087-7 M Spike. Duplicate
Dil.Fact.	1	1	1		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<1	<1	93%	96%
Toluene	<1	<1	<1	90%	94%
Ethylbenzene	<1	<1	<1	91%	98%
m- & p-Xylene	<1	<1	<1	91%	99%
o-Xylene	<1	<1	<1	91%	96%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<1	<1	NA	NA
Surr. Recovery	99%	96%	90%	99%	94%

NA-Not Analyzed.

Date of Report: November 19,1991
Samples Submitted: September 30, 1991
Lab Traveler: 09-091
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
B-6/B-7 (composite)	Soil	19%
B-8/B-9 (composite)	Soil	16%

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
comp	B-6	PCS stockpile	4oz glass	9/26	1630			X			HCID	M
	B-7		"	9/26	1630			X				
comp	B-8		"	9/26	1630			X			~~HCID~~ HCID	M
	B-9		"	9/26	1630			X				
★	CM525	TANKER	20ml vile	9/25	1500					X	HCID	H
	BGW-1	Bickleton	40ml VOA	9/27	1600				X		8015G+BTEX	H
	BGW-1	"	40ml VOA	9/27	1600				X		8015G+BTEX	H
	BGW-1	"	1l amber	9/27	1600				X		HCID	★,

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: (Composite 6+7, and 8+9) ★ CM525 ~~Pure~~ Mixed Road Oil Product for chromatogram to be used for analysis comparison
★, call with HCID Results for further testing

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday 9/27
Received by: Edith Hartie

2. Relinquished by: Edith Hartie
Received by: Pony Express #3942374

3. Relinquished by: Ed Hartie
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES: DATE/TIME:

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)	Surrogate Recovery (%)
B-10/B-11 (composite)	Soil	2	1,300	130%
Quality Assurance				
Method Blank			<40	112%
B-10/B-11 (Duplicate)	Soil	2	1,200	131%

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	B-12/B-13 (composite)	B-17
Matrix	Soil	Soil
Dilution Factor	50	50
Units	ppb	ppb
Analyte:		
Benzene	<50	<50
Toluene	<50	<50
Ethylbenzene	160	210
m- & p-Xylene	440	<50
o-Xylene	500	130
Units	ppm	ppm
TPH/Gas	99[J]	110[J]
Surr. Recovery		

J-The value indicated was below the practical quantitation limit.

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

RESULTS OF ANALYSES OF ENVIRONMENTAL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (EPA METHOD 418.1) (Extracted using EPA Method 3550)

Sample #	Matrix	Dilution Factor	Total Petroleum Hydrocarbons (ppm)
B-14/B-15	Soil	5	620
Quality Assurance			
Method Blank			<25
10-048-8	Soil	25	560
10-048-8 (Duplicate)	Soil	25	610

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL

Batch Sample #:	Method Blank	10-006-1 Original	10-006-1 Duplicate	10-006-1 Matrix Spike @ 1000 ppb	10-006-1 M Spike. Duplicate
Matrix		Soil	Soil	Soil	Soil
Dil.Fact.	1	50	50		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<50	<50	85%	89%
Toluene	<1	<50	<50	84%	88%
Ethylbenzene	<1	<50	<50	86%	90%
m- & p-Xylene	<1	<50	<50	85%	90%
o-Xylene	<1	<50	<50	87%	91%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<50	<50	NA	NA
Surr. Recovery	93%	88%	85%	85%	81%

NA-Not Analyzed.

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
B-14/B-15 (composite)	Soil The chromatogram indicates the presence of hydrocarbons in the Deisel Fuel range(C11-C24), and in the Lubricant range(>C24).	110%
B-16	Soil The chromatogram indicates the presence of hydrocarbons in the Gasoline range(C6-C11), and in the Lubricant range(>C24).	108%
Method Blank	<20 ppm Gasoline <40 ppm Diesel Fuel	112%

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

Analysis for Lead
Using EPA Method 7421

Sample#	B-17
Matrix	Soil
Units	ppm
Analyte:	
Lead	<25

Quality Assurance

Sample #	09-093-6 (Original)	09-093-6 (Dup.)	Matrix Spike	M. Spike (Dup.)	Method Blank
Matrix	Soil	Soil	Soil	Soil	
Units	ppm	ppm			ppm
Analyte					
Lead	<25	<25	94%	99%	<25

Date of Report: October 18, 1991
Samples Submitted: October 2, 1991
Lab Traveler: 10-005
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
B-10/B-11 (composite)	Soil	22%
B-12/B-13 (composite)	Soil	25%
B-14/B-15 (composite)	Soil	18%
B-16	Soil	51%
B-17	Soil	38%

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
Comp	B-10		4oz glass	9/30	1640			X			8015D	M
	B-11	PCS	"	9/30	1640			X				M
Comp	B-12	Stockpile	"	9/30	1640			X			8015G+BTEX	M
	B-13	Bickleton	"	9/30	1640			X				M
Comp	B-14		"	9/30	1640			X			HCID	M
	B-15		"	9/30	1640			X				
	B-16	Bottom T-6	4oz glass	9/30	1645			X			HCID	L
	B-17	Bottom T-1	"	9/30	1645			X			8015G+BTEX 7421 Pb	H

NOTE - Contamination Level is the suspected level of contamination.
L - Low M - Medium H - High

Special Instructions: Composite as indicated please

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr.
Received by: E. Hartter

2. Relinquished by: E. Hartter
Received by: Pony Express # 3942374

3. Relinquished by: E. Hartter
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY: Steve Loague
NUMBER OF SAMPLES: 8 DATE/TIME: 0940 10/2/91

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)	Surrogate Recovery (%)
BF-1/BF-2 (composite)	Soil	2	77[J]	108%
Quality Assurance				
Method Blank			<40	118%
10-013-7	Soil	2	<40	110%
10-013-7 (Duplicate)	Soil	2	<40	112%
(Matrix Spike) Spiked @ 200 ppm Recovery			66%	107%
(M.S. Duplicate) Spiked @ 200 ppm Recovery			64%	104%

J-The value indicated was below the practical quantitation limit.

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)	Surrogate Recovery (%)
BF-7/BF-8 (composite)	Soil	2	580	105%
Quality Assurance				
Method Blank			<40	100%
10-058-1	Soil	2	<40	99%
10-058-1 (Duplicate)	Soil	2	<40	99%
(Matrix Spike) Spiked @ 200 ppm Recovery			78%	88%
(M.S. Duplicate) Spiked @ 200 ppm Recovery			81%	89%

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	BF-3/BF-4	B-18/B-19	B-20/B-21
Matrix	Soil	Soil	Soil
Dilution Factor	50	50	50
Units	ppb	ppb	ppb
Analyte:			
Benzene	<50	<50	<50
Toluene	840	<50	<50
Ethylbenzene	130	<50	<50
m- & p-Xylene	<50	<50	79
o-Xylene	280	<50	87
Units	ppm	ppm	ppm
TPH/Gas	190[J]	<50	70[J]
Surr. Recovery	82%	85%	80%

J-The value indicated was below the practical quantitation limit.

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR SOIL

Sample #:	Method Blank	B-18/B-19 Original	B-18/B-19 Duplicate	B-18/B-19 Matrix Spike @ 1000 ppb	B-18/B-19 M Spike. Duplicate
Dil.Fact.	1	50	50		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<50	<50	86%	93%
Toluene	<1	<50	<50	94%	96%
Ethylbenzene	<1	<50	<50	93%	96%
m- & p-Xylene	<1	<50	<50	92%	99%
o-Xylene	<1	<50	<50	91%	94%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<50	<50	NA	NA
Surr. Recovery	100%	85%	85%	85%	84%

NA-Not Analyzed.

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	BGW-2
Matrix	Water
Dilution Factor	1
Units	ppb
Analyte:	
Benzene	2
Toluene	3
Ethylbenzene	1
m- & p-Xylene	<1
o-Xylene	3
Units	ppm
TPH/Gas	<1
Surr. Recovery	83%

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR WATER

Batch Sample #:	Method Blank	10-009-1 Original	10-009-1 Duplicate	10-009-1 Matrix Spike @ 20 ppb	10-009-1 M Spike. Duplicate
Dil.Fact.	1	1	1		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<1	<1	100%	95%
Toluene	<1	<1	<1	99%	94%
Ethylbenzene	<1	<1	<1	101%	96%
m- & p-Xylene	<1	<1	<1	99%	95%
o-Xylene	<1	<1	<1	101%	97%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<1	<1	NA	NA
Surr. Recovery	94%	94%	93%	99%	97%

NA-Not Analyzed.

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

RESULTS OF ANALYSES OF ENVIRONMENTAL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS BY IR (EPA METHOD 418.1) (Extracted using EPA Method 3550)

Sample #	Matrix	Dilution Factor	Total Petroleum Hydrocarbons (ppm)
BF-1/BF-2 (composite)	Soil	5	64
BF-5/BF-6 (composite)	Soil	200	22,000
Quality Assurance			
Method Blank			<25
10-016-3	Soil	5	<25
10-016-3 (Duplicate)	Soil	5	<25

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

Analysis for Lead
Using EPA Method 7421

Sample#	BF-18/BF-19 (composite)
Matrix	Soil
Units	ppm
Analyte:	
Lead	<25

Quality Assurance

Sample #	09-093-6 (Original)	09-093-6 (Dup.)	Matrix Spike	M. Spike (Dup.)	Method Blank
Matrix	Soil	Soil	Soil	Soil	
Units	ppm	ppm			ppm
Analyte					
Lead	<25	<25	94%	99%	<25

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
BF-7/BF-8 (composite)	Soil The chromatogram indicates the presence of hydrocarbons in the Diesel Fuel range(C11-C24).	106%
Method Blank	<20 ppm Gasoline <40 ppm Diesel Fuel	112%

Date of Report: October 24, 1991
Samples Submitted: October 3, 1991
Lab Traveler: 10-010
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
BF-1/BF-2 (composite)	Soil	16%
BF-3/BF-4 (composite)	Soil	25%
BF-5/BF-6 (composite)	Soil	23%
BF-7/BF-8 (composite)	Soil	27%
BF-18/BF-19 (composite)	Soil	24%
B-20/B-21 (composite)	Soil	20%

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sandy

	Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level	
Comp	BF-1	Outside Old South	40 ml glass	10/1	[illegible]			X			8015D, 418.1	M	was Broken on recep
	BF-2	Outside Old North	"	10/1	[illegible]			X				M	
Comp	BF-3	Outside New South	"	10/1	[illegible]			X			8015G + BTEX	M	
	BF-4	Outside New North	"	10/1	[illegible]			X				M	
Comp	BF-5	Inside old West	"	10/1	[illegible]			X			418.1	M	
	BF-6	Inside old East	"	10/1	[illegible]			X				M	
Comp	BF-7	Inside old North	"	10/1	[illegible]			X			HCID	L	
	BF-8	Inside Old South	"	10/1	[illegible]			X				L	
Comp	B-18	PCS Stockpile	"	10/1	[illegible]			X			8015G+BTEX,	M	
	B-19		"	10/1	[illegible]			X			7421 Pb	M	
Comp	B-20		"	10/1	[illegible]			X			8015G+BTEX	M	
	B-21		"	10/1	[illegible]			X				M	was Broken on recep
	BGW-2	West well water	40ml VOA	10/1	[illegible]				X		8015G+BTEX	L	
	BGW-2	West well water	40ml VOA	10/1	[illegible]				X		8015G+BTEX	L	

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Comp. as indicated

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sandy Jr. 10/2/91 1400
Received by: [illegible]

2. Relinquished by: [illegible]
Received by: [illegible] 3742383

3. Relinquished by:
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY: Cynthia L Reyes
NUMBER OF SAMPLES: 14 DATE/TIME: 10-3-91 9:45 AM
Two broken.

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
BF-9/BF-10	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	104%
BF-11/BF-12	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	105%
BF-13/BF-14	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	104%
BF-15/BF-16	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	111%
BF-17/BF-18	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	107%
BF-19	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	104%
BF-22/BF-23	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	107%

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
BF-24/BF-25	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Diesel Fuel range(C11-C24), and in the Lubricant range(>C24).	116%
BF-26/BF-27	Soil	
	The chromatogram indicates the presence of hydrocarbons in the Diesel Fuel range(C11-C24), and in the Lubricant range(>C24).	119%
BF-28	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	105%
BF-29/BF-30	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	107%
BF-31	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	109%
GWELL 1	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	100%

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

HYDROCARBON INDENTIFICATION
BY METHOD WTPH-HCID

Sample #	GC Characterization	Surr. Recovery
GWELL 2	Soil	
	<20 ppm Gasoline <40 ppm Diesel Fuel	109%
GWELL 3		
	<20 ppm Gasoline <40 ppm Diesel Fuel	109%
Method Blank	<20 ppm Gasoline <40 ppm Diesel Fuel	112%

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	BF-20/BF-21	GWELL 4
Matrix	Soil	Soil
Dilution Factor	50	50
Units	ppb	ppb
Analyte:		
Benzene	<50	<50
Toluene	1,300	84
Ethylbenzene	400	<50
m- & p-Xylene	810	87
o-Xylene	450	70
Units	ppm	ppm
TPH/Gas	390	<50
Surr. Recovery	77%	74%

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR SOIL

Batch Sample #:	Method Blank	10-010-9,10 Original	10-010-9,10 Duplicate	10-010-9,10 Matrix Spike @ 1000 ppb	10-010-9-1 M Spike. Duplicate
Dil.Fact.	1	50	50		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	<50	<50	86%	93%
Toluene	<1	<50	<50	94%	96%
Ethylbenzene	<1	<50	<50	93%	96%
m- & p-Xylene	<1	<50	<50	92%	99%
o-Xylene	<1	<50	<50	91%	94%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<50	<50	NA	NA
Surr. Recovery	100%	85%	85%	95%	84%

NA-Not Analyzed.

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Sample #:	BGW-3
Matrix	Water
Dilution Factor	1
Units	ppb
Analyte:	
Benzene	<1
Toluene	<1
Ethylbenzene	55
m- & p-Xylene	170
o-Xylene	14
Units	ppm
TPH/Gas	4[J]
Surr. Recovery	86%

J-The value indicated was below the practical quantitation limit.

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL FOR WATER

Batch Sample #:	Method Blank	10-017-8 Original	10-017-8 Duplicate	10-017-8 Matrix Spike @ 20 ppb	10-017-8 M Spike. Duplicate
Dil.Fact.	1	1	1		
Units	ppb	ppb	ppb	%Rec.	%Rec.
Analyte:					
Benzene	<1	2	2	95%	95%
Toluene	<1	11	11	95%	89%
Ethylbenzene	<1	2	2	94%	88%
m- & p-Xylene	<1	10	10	96%	88%
o-Xylene	<1	4	4	97%	93%
Units	ppm	ppm	ppm	%Rec.	%Rec.
TPH/Gas	<1	<1	<1	NA	NA
Surr. Recovery	100%	93%	94%	94%	90%

NA-Not Analyzed.

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

RESULTS OF ANALYSES OF SAMPLES FOR DIESEL #2 BY MODIFIED EPA METHOD 8015

Sample #	Matrix	Dilution Factor	Diesel #2 (ppm)	Surrogate Recovery (%)
BF-24/BF-25	Soil	2	530	102%
BF-26/BF-27	Soil	2	1,400	114%
Quality Assurance				
Method Blank			<40	100%
10-058-1	Soil	2	<40	99%
10-058-1 (Duplicate)	Soil	2	<40	99%
(Matrix Spike) Spiked @ 200 ppm Recovery			78%	88%
(M.S. Duplicate) Spiked @ 200 ppm Recovery			81%	89%

Date of Report: October 28, 1991
Samples Submitted: October 4, 1991
Lab Traveler: 10-018
Project: Klickitat County

RESULTS OF DRY WEIGHT

Sample #	Matrix	Moisture
BF-9/BF-10	Soil	46%
BF-11/BF-12	Soil	14%
BF-13/BF-14	Soil	18%
BF-15/BF-16	Soil	18%
BF-17/BF-18	Soil	17%
BF-19	Soil	14%
BF-20/BF-21	Soil	29%
BF-22/BF-23	Soil	19%
BF-24/BF-25	Soil	28%
BF-26/BF-27	Soil	24%
BF-28	Soil	20%
BF-29/BF-30	Soil	25%
BF-31	Soil	14%
GWELL-1	Soil	25%
GWELL-2	Soil	19%
GWELL-3	Soil	17%
GWELL-4	Soil	20%

9-0-18

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 3

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
BF-9	Bickelton Ex.	4oz Glass	10/3	1600			X			HCID	L
BF-10		"		1605							L
BF-11		"		1610						HCID	L
BF-12		"		1615							L
BF-13		"		1620						HCID	L
BF-14		"		1625							L
BF-15		"		1630						HCID	L
BF-16		"		1635							L
BF-17		"		1640						HCID	L
BF-18		"		1645							L
BF-19		"		1650						HCID	L
BF-20		"		1655						~~HCID~~ 8015G+BTEX	M
BF-21		"		1700						8015G+BTEX	M

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Comp as indicated on samples please

Pony Express #3942382

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 10/3/91 1830
Received by: Edith Hartse " "

2. Relinquished by: Edith Hartse 10/3/91 18:50
Received by:

3. Relinquished by:
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY: Stephen Rogue
NUMBER OF SAMPLES: DATE/TIME: 10/4 0910

EPJ 005 Rev. 0

CHAIN OF CUSTODY RECORD

10-018

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 2 of 3

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
BF-22	Bickleton Ex.	4oz Glass	10/3	1705			X			HCID	L
BF-23				1710							L
BF-24				1715						HCID	M
BF-25				1720							M
BF-26				1725						HCID	L
BF-27				1730							L
BF-28				1735						HCID	L
BF-29				1740						HCID	L
BF-30				1745							L
BF-31				1750						HCID	L
BGW-3		40ml VOA		1755				X		8015G+BTEX	L
BGW-3		40 ml VOA		1755				X		8015G+BTEX	L

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Comp as indicated on samples please

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by:
Received by:

2. Relinquished by:
Received by:

3. Relinquished by:
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES: DATE/TIME: 10/4/91 0910

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 3 of 3

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
Gwell-1	Well-1 15' deep	4oz glass	10/2	0920			X			HCID	L
Gwell-2	" 2 "	↓	10/2	1300			X			HCID	L
Gwell-3	" 3 "		10/2	1630			X			HCID	L
Gwell-4	" 4 "		10/3	0900			X			8015G+BTEX	H

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by:
Received by:

2. Relinquished by:
Received by:

3. Relinquished by:
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY:
NUMBER OF SAMPLES: DATE/TIME: 10/4/91 0910

Date of Report: November 1, 1991
Samples Submitted: October 21, 1991
Matrix: Soil
Lab Traveler: 10-080
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

Results reported as ppb

Sample #:	GWELL-1	GWELL-2	MW-3	MW-4
Dilution Factor	1	1	1	1
Analyte:				
Benzene	<1	<1	<1	15
Toluene	<1	<1	<1	22
Ethylbenzene	<1	<1	<1	<1
m- & p-Xylene	<1	<1	<1	30
o-Xylene	<1	<1	<1	28
Gas Units Reported as ppm				
TPH/Gas	<1	<1	<1	4
Surr. Recovery	95%	88%	83%	89%

Date of Report: November 1, 1991
Samples Submitted: October 21, 1991
Matrix: Soil
Lab Traveler: 10-080
Project: Klickitat County

ANALYSIS FOR BTEX AND TPH-GAS
EPA MOD. 8015 (PURGE & TRAP)

QUALITY CONTROL

Reported as ppb

Batch Sample #:	Method Blank	10-076-1 Original	10-076-1 Duplicate
Dil.Fact.	1	1	1
Analyte:			
Benzene	<1	240	240
Toluene	<1	490	490
Ethylbenzene	<1	580	590
m- & p-Xylene	<1	2,000	2,000
o-Xylene	<1	800	800
Gas Units Reported as ppm			
TPH/Gas	<1	25	26
Surr. Recovery	97%	82%	92%

Matrix Spike data not required due to high sample concentration.

10-080

CHAIN OF CUSTODY RECORD

E.P. JOHNSON CONSTRUCTION, INC.
Rt. 7 Box 430-B
Kennewick, Washington 99337
Phone (509) 735-2479
Fax (509) 783-0331

Project # Klickitat County
Page 1 of 1

LABORATORY: ASI
ADDRESS: 12277 134 COURT N.E. - REDMOND, WA. 98052
TELEPHONE: (206) 820-4551
CONTACT: STEVE LOAGUE

SAMPLES TAKEN BY: Tom Sunday

Sample No.	Location	Container Description	Date	Time	Sample Type: Bulk	Air	Soil	Water	Other	Analysis Required	Cont. Level
GWELL-1	North well	1 l amber glass	10/17	1630				X		8015G+BTEX	L
GWELL-2	southeast well	"	10/17	1610				X		8015G+BTEX	L
MW -3	South west well	"	10/17	1705				X		8015G+BTEX	L
MW -4	Source well	"	10/17	1810				X		8015G+BTEX	H *

NOTE – Contamination Level is the suspected level of contamination.
L – Low M – Medium H – High

Special Instructions: Sample MW-4 High concentration gasoline expected!

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished by: Thomas H. Sunday Jr. 10/18/91 1745
Received by: E. Hartse

2. Relinquished by: E. Hartse
Received by: Pony Express # 3943296

3. Relinquished by: E. Hartse
Received by:

4. Relinquished by:
Received by:

5. Relinquished by:
Received by:

6. LABORATORY RECIEPT BY: Tammy C. Howard
NUMBER OF SAMPLES: 4 DATE/TIME: 10-21-91 8:50A

APPENDIX D

DOE SURROUNDING AREA WELL SURVEY

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-0331

September 17, 1991

Department of Ecology
Central Region

Attn: Mr. Phil Crane

Re: Water Well Locations

Per our telephone conversation, 9-17-91, the following location data is provided for a water well search. If you have well information existing, please include casing diameter and depth to groundwater if possible.

1)	Bickleton, WA	SW 1/4, Section 15, T6N, R20E
2)	Glenwood, WA	SW 1/4, Section 10, T6N, R12E
3)	Lyle, WA	NE 1/4, Section 3, T3N, R12E

Please fax or phone information when available.

Thank you.

Sincerely,

E.P. JOHNSON CONSTRUCTION, INC.

Thomas H. Sunday Jr.

Thomas H. Sunday, Jr.
Registered Site Assessor

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. ....
Permit No. ....

(1) OWNER: Name Bernard Davis Address 2502 E. 11th St. The Dalles OR

(2) LOCATION OF WELL: County Klickitat — ~~NE~~ NW ¼ NE ¼ Sec. 3 T. 3 N., R. 12 W.M.

...ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Deepened ☐ Reconditioned ☐
Method: Dug ☐ Bored ☐ Cable ☐ Driven ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 703 ft. Depth of completed well 703 ft.

(6) CONSTRUCTION DETAILS:

Casing installed:
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ 6 " Diam. from 0 ft. to 63 ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20' ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name ....
Type: .... H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 590' ft. below top of well Date 6-1-78
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by ....
(Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ....
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test .... gal./min. with .... ft. drawdown after .... hrs.
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top Soil	0	8'
Clay, brown	8'	18'
Clay, brown, & boulders	18'	41'
basalt, brown, soft	41'	50'
basalt, gray, hard	50'	110'
basalt, red & green clay	110'	120'
basalt, gray, hard	120'	230'
basalt, black, hard	230'	240'
basalt black porous & green clay	240	255'
basalt, gray, hard	255'	530'
basalt black porous	530'	540'
basalt, gray, med hard, porous	540'	555'
basalt, gray, hard	555'	590'
basalt, red, med hard, porous	590	596'
basalt, red, hard	596	612'
basalt, red, porous	612'	630'
basalt, gray, hard	630'	660'
basalt black & red vescular (water bearing)	660	690'
basalt, gray, hard	690'	705

Work started 5-12 19 78 Completed 6-1 19 78

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME M.K. Drilling Co. (Person, firm, or corporation) (Type or print)

[Signature] (Well Driller)

License No. .... Date 6-7-78 19 78

(USE ADDITIONAL SHEETS IF NECESSARY)

OK

050-1 20

Revised

ile Original and First Copy with
epartment of Ecology
econd Copy - Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name JOHN CASTLE Address ST RT #3 Box 16 LYLE, WA 98635

LOCATION OF WELL: County KLICKITAT —SW ¼ NE ¼ Sec. 3 T. 3 N., R. 12 W.M. G

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 340 ft. Depth of completed well 340 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..." Diam. from ... ft. to ... ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☒ 6" Diam. from 0 ft. to 20 ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 240 ft. below top of well Date 9-21-77
Artesian pressure ... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: ... gal./min. with ... ft. drawdown after ... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of last pump test 1½ gal./min. with ... ft. drawdown after ... hrs.
Artesian pressure now ... lbs. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0'	8'
basalt, gray, hard	8'	75'
basalt, brown, clay mixed	75'	145'
basalt, black, hard	145'	195'
basalt, gray, hard	195'	220'
basalt, black, hard	220'	265'
basalt black, porous	265'	270'
basalt, brown, clay mix water	270'	340'

JAN 3 1978

Work started 9-19- 19 77 Completed 9-21- 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME M-J Drilling Co. Inc. (Person, firm, or corporation) (Type or print)

Address P.O. Box 188 LYLE, WA 98635

[Signed] Charles L. Moore (Well Driller)

License No. 0833 Date 12-1- 19 77

(USE ADDITIONAL SHEETS IF NECESSARY)

CY 050 1-70

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy - Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. 1
Permit No. ....

(1) OWNER: Name Jim Bolker Address ST. RT. 3 Box 65 Lyle WA 98635

(2) LOCATION OF WELL: County Klickitat — NW ¼ SE ¼ Sec. 3 T. 3 N., R. 12 W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 140 ft. Depth of completed well 140 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from 0 ft. to 47 1/6" ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 47 ft.
Material used in seal cement & bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 100 ft. below top of well Date 11-8-79
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
Blow Test 7 1/2 gpm					

Date of test 11-8
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0'	3'
brown clay	3'	18'
gray sandstone, soft	18'	41'
gray basalt, hard	41'	53'
brown basalt, med	53'	74'
gray basalt, med. hard	74'	85'
gray & brown basalt, crevised	85'	110'
brown basalt, porous	110'	123'
[illegible] basalt, [illegible] hard	[illegible]	[illegible]
brown basalt, porous	130'	135'
agate rock W.B.	135'	140'

RECEIVED
NOV 27 1979
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 11-8 1979 Completed 11-8 1979

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME M-K Drilling Co. (Person, firm, or corporation) (Type or print)
Address ST. RT 2 Box 100 Lyle WA
[Signed] Charles L. Moore (Well Driller)
License No. 0833 Date 11-8 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Cascade Pacific Properties Address P.O. Box 16462, Portland, Or. 972

(2) LOCATION OF WELL: County Klickitat — ¼ SE ¼ Sec. 3 T. 3 N., R. 15 W.M.
ing and distance from section or subdivision corner SE ¼

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6" inches.
Drilled 280 ft. Depth of completed well 280 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +1 ft. to 24 ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☑ ..." Diam. from ... ft. to ... ft.

Perforations: Yes ☐ No ☑
Type of perforator used .....
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☑ No ☐ To what depth? 24' ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 33' ft. below top of well Date 1/26/73
Artesian pressure ... lbs. per square inch Date .....
Artesian water is controlled by .....
(Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ... gal./min. with ... ft. drawdown after ... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 3 gal./min. with 130 ft. drawdown after 1 hrs.
Artesian flow ... g.p.m. Date .....
Temperature of water 53° Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Clay, Brown	0	4'
Shale + Clay, Brown	4'	24'
Basalt, Grey	24'	43'
Conglomerate; Shale, Basalt Clay Stone, Aprox. 1½ GPM	43'	89'
Basalt, Grey + Brown Seams	89'	143'
Basalt, Vescular, Black Aprox. 1½ GPM	143'	163'
Basalt, S/Fractures, Grey	163'	280'

Work started 1/22 19 73 Completed 1/25 19 73

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME O'Leary Well Drilling Inc. (Person, firm, or corporation) (Type or print)
Address P.O. Box 247-A Goldendale, Wa
[Signed] Kenneth G. O'Leary (Well Driller)
License No. 2060 Date 1/25 19 73

F. No. 1356—OS—(Rev. 4-71).

(USE ADDITIONAL SHEETS IF NECESSARY)

e Original and First Copy with
partment of Ecology
cond Copy — Owner's Copy
ird Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Steven C. Swails Address 16103 SE 4th Vancouver, Wa.

(2) LOCATION OF WELL: County Klickitat — SW ¼ SE ¼ Sec. 3 T. 3 N., R. 12E W.M.

ring and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New Well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 595 ft. Depth of completed well 595 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 23 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 21 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level 2100 ft.
Static level 470 ft. below top of well Date 4/7/76
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by .....
(Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: gal./min. with ft. drawdown after hrs.
" " " "
1½ gal per min air test " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Soil	0	8
Basalt brown	8	60
Basalt gray soft	60	76
Basalt gray hard	76	215
Basalt black	215	225
Basalt gray	225	263
Basalt brown	263	280
Basalt gray	280	383
Rock soft Dk. brown	383	390
Basalt grayhard	390	433
Basalt black	433	450
Basalt gray hard	450	475
Basalt brown fractured WB	475	480
Basalt gray WB	480	595
SWL 470		
Grouted crevice with 45 sacks cement at 358'		

RECEIVED
1976
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 25 June 1976 Completed 4 July 1976

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Richard J. Murray
(Person, firm, or corporation) (Type or print)

Address 3712 W 8th The Dalles, Oregon

[Signed] Richard J. Murray
(Well Driller)

License No. 325 Date 8 July 1976

(USE ADDITIONAL SHEETS IF NECESSARY)

F. No. 7356—OS—(Rev. 4-71)
CY-070-28

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Pine Lodge Estate Kent Johnson Address 1210 PERKINS W. The Dalles, OR 97058

(2) LOCATION OF WELL: County KLICKITAT — SE ¼ SE ¼ Sec. 3 T. 3 N., R. 12 W.M. R

ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #2

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 500 ft. Depth of completed well 500' ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..." Diam. from .. ft. to .. ft.
Threaded ☐ ..." Diam. from .. ft. to .. ft.
Welded ☒ 6" Diam. from — ft. to 22 ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel .....
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☒ No ☐ To what depth? 22 ft.
Material used in seal bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ... H.P. ...

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 320' ft. below top of well Date 9-1-77
Artesian pressure ... lbs. per square inch Date ...
Artesian water is controlled by ... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ...
Yield: ... gal./min. with ... ft. drawdown after ... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ...
Bailer test 4 gal./min. with ... ft. drawdown after ... hrs.
Artesian flow ... g.p.m. Date ...
Temperature of water ... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil & boulders	0	15'
basalt, gray, hard	15'	55'
basalt, black, crevased, soft	55'	75'
basalt, gray, porous	75'	90'
basalt gray, hard	90'	130'
basalt, black, porous & clay, brown	130'	140'
basalt, brown & clay conglomerate	140'	145'
basalt, black, crevased, soft	145'	160'
basalt, gray, hard,	160'	190'
basalt, gray, porous w.B.	190	200
basalt, gray, hard	200'	250'
basalt, gray, porous w.B.	250'	252'
basalt, gray, hard	252	340
black & brown basalt mix w.B.	340	360'
basalt, gray, hard	360	500'

Work started 8-30, 19 77 Completed 9-1, 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME M-J Drilling Co., Inc. (Person, firm, or corporation) (Type or print)
Address P.O. Box 188 Lyle WA 98635

[Signed] Charles L. Moore (Well Driller)

License No. 0833 Date 9-10, 19 77

(USE ADDITIONAL SHEETS IF NECESSARY) OK

Y 050-1-20

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

R

Start Card No. 4939 079835

STATE OF WASHINGTON

Water Right Permit No. _____

(1) OWNER: Name Art Bowen Address Lyle Wa

(2) LOCATION OF WELL: County Klickitat SE ¼ SE ¼ Sec. 3 T. 3N N., R. 12E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) Johnson Rd

(3) PROPOSED USE: [X] Domestic [ ] Irrigation [ ] DeWater [ ] Industrial [ ] Test Well [ ] Municipal [ ] Other

(4) TYPE OF WORK: Owner's number of well (if more than one) _____
Abandoned [ ] New well [X] Deepened [ ] Reconditioned [ ]
Method: Dug [ ] Cable [ ] Rotary [X] Bored [ ] Driven [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 407 feet. Depth of completed well 407 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from +1 ft. to 39 ft.
Welded [X] 4½" Diam. from 5 ft. to 135 ft.
Liner installed [X]
Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes [X] No [ ]
Type of perforator used Saw
SIZE of perforations .087 in. by 6 in.
500 perforations from 35 ft. to 135 ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes [ ] No [X]
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes [ ] No [X] Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes [X] No [ ] To what depth? 39 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 80 ft. below top of well Date 5-5-91
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
_____
_____
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test 6 gal./min. with 327 ft. drawdown after 3 hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 57 Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Top Soil	0	8
Sand + Gravel	8	14
Heavy Fractured Basalt	14	32
Hard Grey Basalt	32	50
Vesecular Brown + Red Basalt	50	68
Hard Grey Basalt	68	79
Vesecular Blue + Black Basalt (W/B)	79	126
Hard Grey Basalt	126	333
Vesecular Black Basalt (W/B)	333	365
Hard Grey Basalt	365	407

Work started 5-3-91, 19__ Completed 5-5-91, 19__

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Bills PS + Well Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address P.O. Box 1213 Goldendale Wa
(Signed) [signature] (WELL DRILLER) License No. 1052
Contractor's Registration No. BILLS PS 113NN Date 5-13, 1991

(USE ADDITIONAL SHEETS IF NECESSARY)

050 1 20 (10 87) 1329

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. ✓
Permit No. ....

(1) OWNER: Name Bickleton Consolidated School Dist # 203 Address Bickleton Washington

(2) LOCATION OF WELL: County KLICKITAT SE ¼ SW ¼ Sec 15 T. 6 N., R 20 W.M.
...ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ School well
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 345 ft. Depth of completed well 345 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" Diam. from +1 ft. to 317 ft.
Threaded ☐ ....." Diam. from [redacted] ft.
Welded ☑ ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☑ No ☐
Type of perforator used Torch
SIZE of perforations 1/8 in. by 5 in.
88 perforations from 297 ft. to 317 ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☑ No ☐ To what depth? 100 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Good Depth of strata 300-330
Method of sealing strata off N/A

(7) PUMP: Manufacturer's Name Unknown
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 78 ft. below top of well Date .....
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom? .....
...d: ..... gal./min. with ..... ft. drawdown after ..... hrs.
..... " ..... " ..... "
..... " ..... " ..... "

...overy data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

...ate of test .....
...er test 150 gal./min. with Total ft. drawdown after 1 hrs.
...sian flow ..... g.p.m. Date .....
...perature of water Not taken Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Overburden Clay	0	7
" " Clay + Broken Basalt	7	20
Basalt - Broken to Soft	20	103
Basalt - Medium Hard	103	297
Basalt Medium Hard with Seams	297	330
Basalt Hard	330	345

1980
DEPARTMENT OF CENTRAL

Work started Sept 24 1979 Completed Nov 29 1979

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Aqua Drilling Inc (Person, firm, or corporation) (Type or print)

Address P.O. Box 659 Hayden Lake, IDA. 83835

[Signed] [signature] (Well Driller)

License No. 0041 Date Dec 3, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

050 1 20

lic Original ... First Copy with
partment of Ecology
ond Copy — Owner's Copy
rd Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name R.J. Rupp Address Bicklton, Wa.

(2) LOCATION OF WELL: County Klickitat SW¼ SW¼ Sec. 15 T. 6 N., R 20 W.M. N

...ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 205 ft. Depth of completed well 205 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 22' ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☑ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 22' ft.
Material used in seal Bentonite & Cement
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 12 ft. below top of well Date 2/27/74
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(8) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom?
...d: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 12 gal./min. with 150 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date
Temperature of water 54° Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Clay & Boulders	0	11'
Basalt, Grey	11'	135
Shale, Brown	135'	165'
Basalt, Frac., Grey	165'	205'

Work started 2/25 19 74 Completed 2/27 19 74

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME O'Leary Well Drilling Inc. (Person, firm, or corporation) (Type or print)

Address P.O. Box 247-A Goldendale, Wa.

[Signed] Kenneth G. O'Leary (Well Driller)

License No. 0375 Date 3/24, 1974

...No. 7356—OS—(Rev. 4-71). 4/2/74 (USE ADDITIONAL SHEETS IF NECESSARY)

APPENDIX E

NEW MONITORING WELL LOGS
GLENWOOD, WA.

This page intentionally left blank. The official DOE well logs have not been completed by Tacoma Pump and Drill. When completed the logs shall be issued as an addendum to this report.

Tacoma Pump & Drilling Company, Inc.

30316 MOUNTAIN HIGHWAY • GRAHAM, WASHINGTON 98338 • PHONE 847-9352

DAILY DRILLING LOG

DATE: 10. 3. 91
DRILLER: 0710
WELL I.D.: MW # 4
START TIME: 8:00
FINISH TIME: 4:30

CLIENT: E.P JOHNSON
LOCATION: GLENWOOD
SIZE: 6¼
START DEPTH: 0
FINISH DEPTH: 20'

	TIME		DESCRIPTION	MATERIALS
	7:50	8:30	ARRIVE @ SITE WARM UP	20' 6¼" BORING ✓
	8:30	9:15	DRILL TO 20'	
.75	9:15	10:00	INSTALL	
3.	10:00	1:00	DECON DIG GUARD POST @ MW#4	10' SCN ✓
	1:00	2:00	LUNCH	10' BLK ✓
2.5	2:00		CEMENT 8" PROCOVERS & GAURD POST	1 ED. CP ✓
		4:30	MOVE BARRELS. LOAD TRES	3 SKS 10.20 ✓
	4:30	8:30	TRAVEL TIME TO SHOP	4 SKS ENV. PG ✓
				20 SKS READI MIX ✓
				2 EA 8" GAURD PRO COVERS ✓
				6 EA 3" GAURD POST ✓
				2 EA 4" SP CAPS ✓

REMARKS: 6.25

DRILLER: ERIC HANSON
OILER: BUTCH DIETSCHE
RIG: "61"
CONSULTANT:

E. P.
JOHNSON
CONSTRUCTION, INC.

licensed bonded general contractor
EPJOHCI* 160MB

Rt. 7, Box 430-B • Kennewick, Washington 99337 • (509) 735-2479 • (509) 627-1336 • FAX (509) 783-0331

RECEIVED
JAN 10 1992
EPA - WOO

January 7, 1992

Washington State Department of Ecology
Underground Storage Tank Section
Mail Stop PV-11
Olympia, Wa. 98504-8711

Attention: Joan Villines

Re: **ADDENDUM TO THE KLICKITAT COUNTY SITE ASSESSMENT REPORT**
Doe Site ID# 011504 - Bickleton.
011505 - Glenwood.
011507 - Lyle.

Enclosed are the official copies of the tank demolition certificates for the tank decommissioning projects performed for Klickitat County Public Works. Please include these pages into the report copy(s) that you currently possess. Insert the demolition certificates for each location directly following the UST Closure Checklist in Appendix B.

Also enclosed are the official copies of the completed well logs that were installed for groundwater characterization in Glenwood, Wa. Please insert these logs in place of the page labeled "Intentionally left blank" in appendix E.

This updated information shall complete the report for the Bickleton and Lyle locations. The Glenwood location, EPA jurisdiction, shall have continued remedial actions per letter, Robert Cutler, EPA to Steve Nygaard, Klickitat County dated December 23, 1991.

If you should have any questions, please call me at (509) 735-2479.

Thank you
E.P. Johnson Construction, Inc.

Thomas H. Sunday Jr.

Thomas H. Sunday Jr.,
Registered Site Assessor

cc: Steve Nygaard, Klickitat County
Robert Cutler, EPA
Mike Cochrane, DOE Central Division
EPJ Project File

CERTIFICATE OF DEMOLITION

Facility

Name BICKLETON SHOP

Address

Facility ID NO.

Phone

Tank Owner

Name KLICKITAT COUNTY PUBLIC WORKS

Address 205 S. COLUMBIA
GOLDENDALE, WA 98620

Phone (509) 773-4616

Performed By:

E. P. JOHNSON CONSTRUCTION, INC.
Rt. 7, Box 430-B
Kennewick, WA 99337
(509) 735-2479

Tanks to be Decommissioned

Tank ID#	Tank Size	Last Product Stored
	1500 GALLON	DIESEL
	1000 GALLON	GASOLINE

Where and how will the old tanks be disposed?

Scrap Name PACIFIC STEEL Location PASCO, WA

Landfill Name Location

Stored Name Location

Other Comment

Signature Karla S. Harrison Date 11-12-91

KARLA S. HARRISON, CONTRACT ADMINISTRATOR

EPJ.002 Rev.0

Pacific

Steel/Hides/Furs/Recycling

Pacific Hide & Fur Depot

BR #	DATE	BY
30	9/6/11	N

LEGAL OWNER OF GOODS

AUTHORIZED SIGNATURE (REQUIRED) E P Johnson

ADDRESS Tom Sunday

CITY STATE

S.S. # OR STATE I.D. #

DESCRIPTION	#	QUANTITY	UNIT	PRICE	AMOUNT
BEEF HIDES					
GREEN COWS	110		EA.		
GREEN STEERS	110		EA.		
# 3 HIDES	120		EA.		
COUNTRIES	150		EA.		
BULLS	160		EA.		
KIPS & CALVES	170		EA.		
GAME SKINS					
WHOLE DEER	310		EA.		
DEER HALVES	320		EA.		
WHOLE ELK	330		EA.		
ELK HALVES & QUARTERS	340		EA.		
ANTELOPE	350		EA.		
ANTLERS - ELK	381		LBS.		
ANTLERS - DEER	380		LBS.		
RECYCLING					
PLASTIC	395		LBS.		
NEWSPAPERS	385		LBS.		
CARDBOARD	390		LBS.		
GLASS	398		LBS.		
SALVAGE	450				
ALUMINUM CANS	795		LBS.		
SCRAP METALS					
SCRAP IRON	400	1050	LBS.	300	15 75
SCRAP IRON	400		LBS.		
SCRAP IRON	400		LBS.		
TIN & CAR BODIES	480		LBS.		
# 1 COPPER	510		LBS.		
# 2 COPPER	510	Bickleton 2 tanks	LBS.		
LIGHT COPPER	510		LBS.		
INSULATED COPPER	520		LBS.		
IRONY COPPER	530		LBS.		
CONVERTER PELLETS	545		LBS.		
RED BRASS	550		LBS.		
YELLOW BRASS	560		LBS.		
RADIATORS	570		LBS.		
STAINLESS	640		LBS.		
ZINC OR DIE CAST	645		LBS.		
ALUMINUM	710		LBS.		
IRONY ALUMINUM	710		LBS.		
SOFT LEAD	810		LBS.		
BATTERY LEAD	840		LBS.		

PURCHASE AGREEMENT PROVISION ON REVERSE SIDE

TOTAL AMOUNT 15 75

☐ CASH ☐ DRAFT #

SELLER'S COPY

CERTIFICATE OF DEMOLITION

Facility

Name GLENWOOD SHOP

Address

Facility ID NO.

Phone

Tank Owner

Name KLICKITAT COUNTY PUBLIC WORKS

Address 205 S. COLUMBIA
GOLDENDALE, WA 98620

Phone (509) 773-4616

Performed By:

E. P. JOHNSON CONSTRUCTION, INC.
Rt. 7, Box 430-B
Kennewick, WA 99337
(509) 735-2479

Tanks to be Decommissioned

Tank ID#	Tank Size	Last Product Stored
	1000 GALLON	DIESEL
	1000 GALLON	GASOLINE

Where and how will the old tanks be disposed?

Scrap Name PACIFIC STEEL Location PASCO, WA

Landfill Name Location

Stored Name Location

Other Comment

Signature Karla S. Harrison Date 11-12-91

KARLA S. HARRISON, CONTRACT ADMINISTRATOR

Pacific TM Pacific Hide & Fur Depot

Steel/Hides/Furs/Recycling

BR #	DATE	BY
30	7/16/11	[illegible]

LEGAL OWNER OF GOODS: T J Johnson Constr.

AUTHORIZED SIGNATURE (REQUIRED): [illegible]

ADDRESS:

CITY: Kennewick STATE: WA.

S.S. # OR STATE I.D. #:

DESCRIPTION	#	QUANTITY	UNIT	PRICE	AMOUNT
BEEF HIDES					
GREEN COWS	110		EA.		
GREEN STEERS	110		EA.		
# 3 HIDES	120		EA.		
COUNTRIES	150		EA.		
BULLS	160		EA.		
KIPS & CALVES	170		EA.		
GAME SKINS					
WHOLE DEER	310		EA.		
DEER HALVES	320		EA.		
WHOLE ELK	330		EA.		
ELK HALVES & QUARTERS	340		EA.		
ANTELOPE	350		EA.		
ANTLERS - ELK	381		LBS.		
ANTLERS - DEER	380		LBS.		
RECYCLING					
PLASTIC	395		LBS.		
NEWSPAPERS	385		LBS.		
CARDBOARD	390		LBS.		
GLASS	398		LBS.		
SALVAGE	450				
ALUMINUM CANS	795		LBS.		
SCRAP METALS					
SCRAP IRON	400	1480	LBS.	30.00	22 20
SCRAP IRON	400		LBS.		
SCRAP IRON	400		LBS.		
TIN & CAR BODIES	480		LBS.		
# 1 COPPER	510		LBS.		
# 2 COPPER	510	Klickitat	LBS.		
LIGHT COPPER	510	Co.	LBS.		
INSULATED COPPER	520		LBS.		
IRONY COPPER	530		LBS.		
CONVERTER PELLETS	545	Okanogan	LBS.		
RED BRASS	550		LBS.		
YELLOW BRASS	560		LBS.		
RADIATORS	570	2 tanks	LBS.		
STAINLESS	640		LBS.		
ZINC OR DIE CAST	645		LBS.		
ALUMINUM	710		LBS.		
IRONY ALUMINUM	710		LBS.		
SOFT LEAD	810		LBS.		
BATTERY LEAD	840		LBS.		

PURCHASE AGREEMENT PROVISION ON REVERSE SIDE

TOTAL AMOUNT 22 20

☐ CASH ☐ DRAFT #

SELLER'S COPY

CERTIFICATE OF DEMOLITION

Facility

Name LYLE COUNTY SHOP

Address

Facility ID NO.

Phone

Tank Owner

Name KLICKITAT COUNTY PUBLIC WORKS

Address 205 S. COLUMBIA
GOLDENDALE, WA 98620

Phone (509) 773-4616

Performed By:

E. P. JOHNSON CONSTRUCTION, INC.
Rt. 7, Box 430-B
Kennewick, WA 99337
(509) 735-2479

Tanks to be Decommissioned

Tank ID#	Tank Size	Last Product Stored
	500 GALLON	DIESEL
	1000 GALLON	DIESEL
	1000 GALLON	GASOLINE

Where and how will the old tanks be disposed?

Scrap Name PACIFIC STEEL Location PASCO, WA

Landfill Name Location

Stored Name Location

Other Comment

Signature Karla S. Harrison Date 11-12-91

KARLA S. HARRISON, CONTRACT ADMINISTRATOR

EPJ.002 Rev.0

Pacific TM. Pacific Hide & Fur Depot

Steel/Hides/Furs/Recycling

LEGAL OWNER OF GOODS: E. P. JOHNSON

AUTHORIZED SIGNATURE (REQUIRED)

ADDRESS: PENN.

CITY

STATE

S.S. # OR STATE I.D. #

BR #	DATE	BY
30	7/14/91	[illegible]

DESCRIPTION	#	QUANTITY	UNIT	PRICE	AMOUNT
BEEF HIDES					
GREEN COWS	110		EA.		
GREEN STEERS	110		EA.		
# 3 HIDES	120		EA.		
COUNTRIES	150		EA.		
BULLS	160		EA.		
KIPS & CALVES	170		EA.		
GAME SKINS					
WHOLE DEER	310		EA.		
DEER HALVES	320		EA.		
WHOLE ELK	330		EA.		
ELK HALVES & QUARTERS	340		EA.		
ANTELOPE	350		EA.		
ANTLERS - ELK	381		LBS.		
ANTLERS - DEER	380		LBS.		
RECYCLING					
PLASTIC	395		LBS.		
NEWSPAPERS	385		LBS.		
CARDBOARD	390		LBS.		
GLASS	398		LBS.		
SALVAGE	450		LBS.		
ALUMINUM CANS	795		LBS.		
SCRAP METALS					
SCRAP IRON	400	3260	LBS.	30.00	48 90
SCRAP IRON	400		LBS.		
SCRAP IRON	400		LBS.		
TIN & CAR BODIES	480		LBS.		
# 1 COPPER	510		LBS.		
# 2 COPPER	510		LBS.		
LIGHT COPPER	510		LBS.		
INSULATED COPPER	520		LBS.		
IRONY COPPER	530		LBS.		
CONVERTER PELLETS	545		LBS.		
RED BRASS	550		LBS.		
YELLOW BRASS	560		LBS.		
RADIATORS	570		LBS.		
STAINLESS	640		LBS.		
ZINC OR DIE CAST	645		LBS.		
ALUMINUM	710		LBS.		
IRONY ALUMINUM	710		LBS.		
SOFT LEAD	810		LBS.		
BATTERY LEAD	840		LBS.		

Stacks Safe ?

PURCHASE AGREEMENT PROVISION ON REVERSE SIDE

TOTAL AMOUNT 48 90

☐ CASH ☐ DRAFT #

SELLER'S COPY

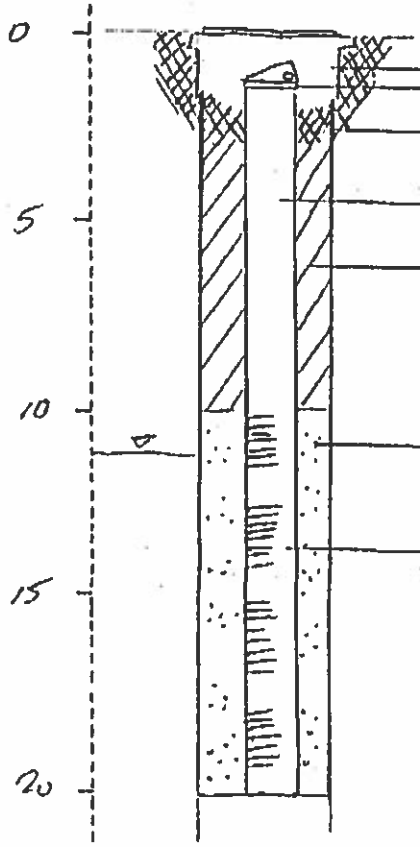
RESOURCE PROTECTION WELL REPORT

037285

PROJECT NAME: KLICKITAT CO. PUBLIC WORKS
WELL INDENTIFICATION NO. MW#3 + MW#4
DRILLING METHOD: HOLLOW STEM AUGER
DRILLER: ERIC HANSEN
FIRM: TACOMA PUMP & DRILLING
SIGNATURE: [signature]
CONSULTING FIRM: E.P. JOHNSON
REPRESENTATIVE: TOM SUNDAY

LOTS 9810 MCCHESTER ADDITION BLOCK D SW1/2 OF THE SE1/4
START CARD NO. ____
LOCATION: T 0 N, R 12 E, SEC. 10
DISTANCE: ____ FT. FROM N/S SECTION LINE
____ FT. FROM E/W SECTION LINE
DATUM: ____
WATER LEVEL ELEVATION: ____
INSTALLED: 10-2-91
DEVELOPED: 10-7-91

AS-BUILT | WELL DATA | FORMATION DESCRIPTION



12" FLUSH MT.
4" LOCKING COMPRESSION CAP
READI MIX CONCRETE
4" SCH 40 P.V.C. BLANK
BENTONITE CHIPS
10-20 SILICA SAND
4" SCH 40 P.V.C. .010 SCREEN

FILL, CRUSHED GRAVEL
LARGE GRAVELS, SILTY SAND FINE TO MEDIUM, BROWN
LARGE GRAVELS MEDIUM SAND, WET

0
15
5
10
15
20'

SCALE: 1"= ____

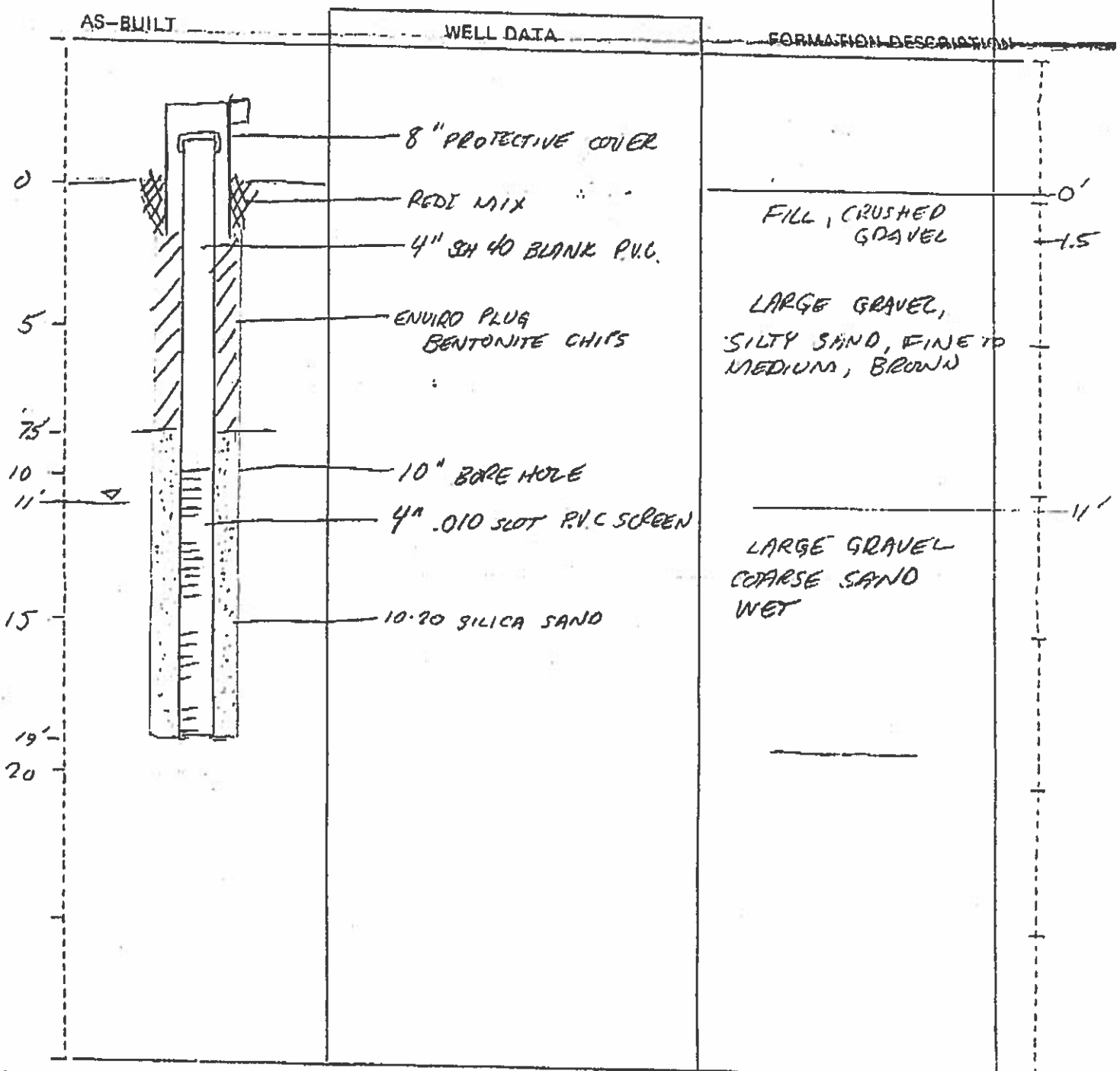
PAGE ____ OF ____

RESOURCE PROTECTION WELL REPORT

START CARD NO. 037335

PROJECT NAME: KLICKITAT CO. PUBLIC WKS.
WELL INDENTIFICATION NO. MW #1 + MW #2
DRILLING METHOD: HOLLOW STEM AUGER
DRILLER: ERIC HANSEN
FIRM: TACOMA PUMP & DRILLING
SIGNATURE: [illegible]
CONSULTING FIRM: E.P. JOHNSON
REPRESENTATIVE: TOM SUNDAY

LOTS 9&10 MCEALSTER ADDITION BLOCK 0
SW 1/2 OF THE SE 1/4
LOCATION: T 6N, R 12E, SEC. 10
DISTANCE: _____ FT. FROM N/S SECTION LINE
_____ FT. FROM E/W SECTION LINE
DATUM:
WATER LEVEL ELEVATION: 11'
INSTALLED: 10-2-91
DEVELOPED: 10-7-91



SCALE: 1"= _____

PAGE ____ OF ____

UNDERGROUND STORAGE TANK
Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a Licensed Decommissioning Supervisor. The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a Service Provider. If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street)

GOLDENDALE, (City) WA (State) 99337 (ZIP-Code) (P.O. Box)

Telephone: (509) 735-2479

Site ID Number (on invoice or available from Ecology if tank is registered): 011505

Site/Business Name: KLICKITAT COUNTYSHOP - GLENWOOD

Site Address: NW Division + E. Main Streets (Street) Klickitat (County)

Glenwood (City) Wa. (State) (ZIP-Code)

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: E.P. JOHNSON CONSTRUCTION, INC. License Number: S000151

Address: RT. 7, BOX 430-B UNION LOOP AND BRINKLEY ROAD (Street)

KENNEWICK (City) WA (State) 99337 (ZIP-Code) (P.O. Box)

Telephone: (509) 735-2479

Licensed Supervisor: James R. Johnson Decommissioning License Number: W000605

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year installed: 1961
3. Tank capacity in gallons: 1000
4. Date of last use: 3-31-91
5. Last substance stored: Diesel Fuel
6. Date of closure/change-in-service: 9-5-91
7. Type of closure: Closure with Tank Removal [✓] In-place Closure [ ] Change-In-Service [ ]
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes [✓] No [ ]

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11-11-91
Date

James A. Hanna
Signature of Licensed Supervisor

5. ADDITIONAL REQUIRED SIGNATURES

11/13/91
Date

Signature of Licensed Service Provider Firm Owner or Authorized Representative

11-21-91
Date

Steven [illegible]
Signature of Tank Owner or Authorized Representative

In-service at the site. For additional tanks you may photocopy

3. TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year installed: 1982
3. Tank capacity in gallons: 1000
4. Date of last use: 3-31-91
5. Last substance stored: Gasoline unleaded
6. Date of closure/change-in-service: 9-5-91
7. Type of closure: Closure with Tank Removal ☑ In-place Closure ☐ Change-in-Service ☐
8. If in-place closure is used, the tank has been filled with the following substance: N/A
9. If change-in-service, indicate new substance stored in tank: N/A
10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes ☑ No ☐

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

4. CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	✓		
2. Has all product piping been capped or removed?	✓		
3. Have all non-product lines been capped or removed?	✓		
4. Have all liquid and accumulated sludges been removed from the tank?	✓		
5. Has the tank been properly purged or inerted?	✓		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?	✓		
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.			✓
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	✓		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	✓		

*Item not applicable

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11-11-91 — Date

Signature of Licensed Supervisor: James A. Hoan

5. ADDITIONAL REQUIRED SIGNATURES

11/13/91 — Date

Signature of Licensed Service Provider (firm) Owner or Authorized Representative: [signature]

11-21-91 — Date

Signature of Tank Owner or Authorized Representative: [signature]

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

UST Owner/Operator: KLICKITAT COUNTY PUBLIC WORKS

Owners Address: 205 S. COLUMBIA AVENUE (Street) P.O. Box

GOLDENDALE, (City) WA (State) 98620 (ZIP-Code)

Telephone: (509) 773-5512

Site ID Number (on invoice or available from Ecology if tank is registered): 011505

Site/Business Name: KLICKITAT COUNTY SHOP - GLENWOOD

Site Address: NW Division + E. Main Streets (Street) Klickitat (County)

Glenwood (City) Wa. (State) (ZIP-Code)

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: THOMAS H. SUNDAY, JR.

Address: RT. 7, BOX 430-B (Street) UNION LOOP AND BRINKLEY ROAD (P.O. Box)

KENNEWICK (City) WA (State) 99337 (ZIP-Code)

Telephone: (509) 735-2479

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year Installed: 1961
3. Tank capacity in gallons: 1000
4. Last substance stored: DIESEL

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

_____ Investigate suspected release due to on-site environmental contamination

_____ Investigate suspected release due to off-site environmental contamination

_____ Extend temporary closure of UST system for more than 12 months

_____ UST system undergoing change-in-service

_____ UST system permanently closed-in-place

X UST system permanently closed with tank removed

_____ Required by Ecology or delegated agency for UST system closed before December 22, 1988

_____ Other (describe): _____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	X	~~X~~ TS 11/1/91
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday Jr.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven Ray Nieman
Signature of Tank Owner or Authorized Representative

3. TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 011505
2. Year installed: 1982
3. Tank capacity in gallons: 1000
4. Last substance stored: UNLEADED GASOLINE

4. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination
- ____ Extend temporary closure of UST system for more than 12 months
- ____ UST system undergoing change-in-service
- ____ UST system permanently closed-in-place
- X UST system permanently closed with tank removed
- ____ Required by Ecology or delegated agency for UST system closed before December 22, 1988
- ____ Other (describe): ____

5. CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? *NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.*	X	
3. Are the results of the site check/site assessment enclosed with this checklist? *NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.*	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above. Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

11/11/91
Date

Thomas H. Sunday Jr.
Signature of Person Registered with Ecology

6. OWNER'S SIGNATURE

11-21-91
Date

Steven Jay Maynard
Signature of Tank Owner or Authorized Representative