PRELIMINARY
SITE INSPECTION REPORT

Resource Recovery Corporation
TDD R10-8408-22

Site Name/Address

Resource Recovery Corporation
Pasco Sanitary Landfill
Kahlotus Road and Highway 12
Pasco, WA 99301

Investigation Participants

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Principal Site Contacts

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John Zillich, Project Manager, J-U-B Engineers (JUB), (509) 783-2144
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Date of Inspection

9/12/84 0800 hrs.

INTRODUCTION

1.0

Resource Recovery Corporation (RRC) Pasco Sanitary Landfill (PSL) has been identified by the U.S. ~~Environmental Protection Agency~~ (EPA) Region X and ~~Washington Department of Ecology~~ (WDOE) from preliminary assessment screening as requiring additional information to accurately profile the nature and extent of past waste disposal activity at the site. ~~Ecology and Environment, Inc.~~ (E&E) has been requested by EPA under Technical Directive Document No. R10-8408-22 to conduct a site inspection and evaluate the facility's status within the Agency's Uncontrolled Hazardous Waste Site Program. This report summarizes the results of E&E's preliminary site inspection, ~~and is divided into the following sections~~:

Bill we have these up here
do we need them down
Prop here?

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1.5

2.0 SITE LOCATION

The PSL is located 1.5 miles to the northeast of Pasco, Washington in the SW 1/4 of Section 15 and the NW 1/4 of Section 22, Township 09 north, Range 30 east, Willamette Meridian, Franklin County (Figure 2.1). The ~~site that the~~ PSL ~~is located on~~ has been operated as a landfill since 1956.(1) It has received municipal waste since it began operation with the exception of the period from 1972 to 1980 when it was also operated as a regional hazardous waste site.

The site has been owned and operated by Larry Dietrich since January 1981 when he took over for his father John Dietrich. Records indicate that John Dietrich owned the site

from 1956 to 1981. ~~and~~ The site was leased ~~to~~ to the Resource Recovery Corporation during this time period operated as a regional hazardous waste site (1).

The average elevation of the site is 410 feet above mean sea level (msl) with the land sloping approximately 1 to 3 percent to the west-southwest. The land in the general vicinity of the site is rural (population of approximately 35 people within a 1 mile radius) with several irrigated agricultural fields intermixed with range land.

3.0 HYDROGEOLOGY

The generalized description of the geologic units underlying PSL is presented in Table 3.1.

TABLE 3.1
DESCRIPTION OF GEOLOGIC UNITS (2,3)

Geologic Unit	Sub-unit	Depth (ft)	Permeability (cm/sec)	Description
Eolian sand & silt		surface	10^{-3} to 10^{-5}	Light brown. Very fine sands and silts
Touchet Formation		0 to 40	$10^{-3} \geq 10^{-5}$	Light to medium brown. Very fine to Medium grained sands. Occasionally slight to very silty.
Pasco Gravels		40 to 60	$> 10^{-3}$	Dark grey. Locally fine to coarse grained sands with occasional gravel
Ringhold Formation	Ringhold Sands	60 to 100	$> 10^{-3}$	Dark grey. Medium to coarse grain with gravel. Gravel increasing and getting coarser with depth
	Ringhold gravels	100 to 110	$> 10^{-3}$	Tan gravel with sand
	Ringhold clays	> 110 to 140 (?)		blue clay

Yakima Basalts	>140 (V)	10^{-2} to 10^{-5} (4)	Basalt

The exact elevation of the Ringhold Clays and Yakima Basalts at the site are not known as the existing monitoring wells do not penetrate the Ringhold clays.

Groundwater beneath the site occurs in the Yakima Basalt sequence and the overlying sedimentary materials. The disposal site will have a potential impact only on the groundwater in the sedimentary materials (8). The depth to the water table aquifer is approximately 55 feet below the average land surface (approximately 355 feet msl), thus the surface of the groundwater tops the Ringhold Sands and is in the Pasco gravels (8). Groundwater

ecology and environment
recycled paper

movement is in a general southwestly direction toward the Columbia River (6). The major use of groundwater in the area is crop irrigation.

The site has a semi-arid climate with an overall negative water budget of approximately 32-inches per year(8). The two year 24 hour rainfall is 0.8-inches, with July being the driest month having less than 0.2-inches of rainfall (6).

4.0 DISPOSAL PRACTICES

The PSL site was operated as an open burning dump from 1956 to 1971(1). The primary wastes accepted were municipal ~~was~~ wastes which were dumped on the groundsurface and periodically

burned. In 1971 the operation was changed from an open burning dump to a sanitary landfill in which the burning activity stopped and the refuse was periodically covered with soil (1).

Resource Recovery Corporation leased a portion of the landfill in 1972 from the landowner John Dietrich and began operating a regional hazardous waste site. (John's son) The site was managed by Larry Dietrich as an employee of RRC. The wastes accepted and disposed of in sub-sites from 1973 through 1981 under WDOE Permit # 5301 issued 21 March 1973. The majority of ~~the~~ hazardous wastes were accepted from 1972 to 1974; Table 4.1 summarizes the types, quantities, and disposal locations (unknown) for this period.

same ¶ as last. The sanitary landfill operation continued during the period of time Resource Recovery leased the site.

Resource Recovery operated the site until January 1981, at which time the operation lease terminated and all interests RRC had in the operation were reverted to the Dietrichs. Larry Dietrich has operated the site as a sanitary landfill since that time.

In addition, in 1974 a sewage evaporation lagoon was constructed to the disposal areas for the disposal of septic tank wastes (Figure 4.1).

Just trying to date this!

5.0 PAST INVESTIGATIONS

5.1 WDOE Investigation

In September 1973, the WDOE ordered an investigation of the RRC operation at PSL. [This investigation was ~~based on~~ initiated because of the concerns of local farmers and the WDOE, ~~about~~ relating to the potential effects of ~~some of~~ the materials buried at the site on the local agricultural crops.] The ~~This~~ investigation included a site visit to ascertain current site conditions, waste types disposed of at the site and their potential impact on groundwater, ~~and~~ as well as potential air contamination. No samples of the wastes or groundwater were reportedly collected or analyzed by the WDOE. The WDOE prepare a report which was published in December 1973. In their report, WDOE stated that the site was in an excellent location for ground disposal

of industrial solid wastes, if the proper safeguards are observed. Further, that the arid climate prevents the leaching of solid wastes disposed into the ground and is conducive to on-site concentration and dessication of liquid wastes. They also concluded that since the water table is relatively shallow, it is not acceptable to dispose of liquid wastes directly to the ground in unlined pits or trenches.

The ~~report~~ state concluded that the ~~went on to discuss the~~ probability of air pollution ~~also low~~ at the site was considered to be low. ~~in which it was concluded that the potential for it was low~~ Figure 5.1 explains the site structure during this WDOE investigation.

The report ~~ended~~ concluded with ~~a set of~~ recommendations which included:

- all materials received for disposal at the site shall be recorded

as to the type, chemical composition and quantity,

What does this mean?

- abandoned disposal sites must be permanently monumented.
- all trenches intended for disposal of hazardous wastes ~~shall~~? should be lined

~~[illegible]~~ oops!

5.2 J-U-B Engineers Reports

J-U-B Engineers have ~~done~~ completed 2 reports on the PSL. ~~site. One report titled Evaluation of the Pasco Sanitary Landfill Waste Disposal Practices~~ (date?) (June 1981) ~~and the other Summary Report Groundwater Quality in the Vicinity of the Pasco Sanitary Landfill written July 1983. The contents of the former report are unknown as I can only find the~~

(Tom Boy, contact J-UB)

1 of

5.2 J-U-B Engineers Reports

J-U-B Engineers has completed 2 reports on the PSL. One report titled Evaluation of the Pasco Sanitary Landfill Waste Disposal Practices (June 1981)

In July 1983, J-U-B Engineers published another report on the PSL (5) which included;

- a summary of the construction of 6 groundwater monitoring wells complete in January 1982 (Figure 5.
- tentatively identified the direction of groundwater flow;
- summarized the analytical results of quarterly groundwater samples collected by J-U-B Engineers; from January 1982 to March 1983;
- compared the groundwater quality to health effect limits.

Five subsites were identified as receiving hazardous wastes (Figure 5.2). The WDOE Investigation site map (Figure 5.1) identified a possible 14 subsites. J-U-B has combined the subsites as follows (9):-

J-U-B identification	DOE identification
A	1
B	6
C and D	2 to 5
E	8 and 9

Site 7 is the active landfill, 10 to 12 were never used, and 13 & 14 were designated for future landfill operations.

J-U-B Engineering concluded the following:

- existing monitoring wells are located in order to detect any leachate from the industrial and solid waste areas and the sewage evaporation lagoon;
- the wells are constructed to obtain water from the upper 20 feet of the water table aquifer which is where contaminants from

the landfill would be most readily observed;

- sampling results for health-effect related parameters) ~~were also~~ show them to be largely below detection limits and in all cases below the EPA allowable contaminant levels.

5.3 Preliminary Assessments (PA) and Site Inspections (SI)

Table 5.1 summarizes the PA's and SI's which have been ~~done~~ conducted to date.

TABLE 5.1

SUMMARY OF PA and SI ACTIVITIES (10)

Activity	Date	Responsible Agency
Identification of Potential Problem	07.79	EPA
SI	07.79	EPA
PA	08.79	EPA
SI	04.80	WDOE
PA	04.84	JRB Associates
Hazard Ranking System Score	04.84	Unknown

Want to these anyone from E&E?

6.0 OBSERVATIONS

On 12 Sept 1984, a site inspection was conducted at PSL. The site inspection began ~~12 September 1984~~ at 0800. Mike Gallagher (WDOE), Larry Dietrich (PSL), John Zillich (J-U-B Engineering), Peter Evers (E&E) and Richard Brooks (E&E) were present.

The inspection included a discussion about background information, a site tour, and sample collection. It was noted during the site tour that

no drums or hazardous wastes were visible at the surface and no colour stains or leachate seeps were seen.

Three groundwater samples were collect - during the inspection, a ~~background sample from the on-site control well, a downgradient sample (Well #3, Figure 4.1), and a blank.~~ The results of the analysis of these samples and quality assurance tables is

contained in Appendix A. This data indicates that there is no organic contamination, from the silt dampers, reaching the groundwater which was sampled. The inorganic analysis revealed higher levels of heavy metals in the well which has been identified as the control well (Table 6.1).

(~~control~~)

TABLE 6.1

COMPARISON OF SELECTED HEAVY METALS (µg/L)

Metal	Upgradient Well	Well #3	EPA Recommended Level (*)
aluminum	102,000	41,500	—
arsenic *	39	28	50
barium	1,631	785	1000
beryllium	7	5u	1.17
cadium	19	1u	10
chromium	106	46	50
cobalt	170	5u	—
copper *	280	120	1000
iron	199,900	97,450	—
lead	160	70	50
manganese	4,380	1,694	—
nickel *	162	63	13.4
vanadium	302	200u	—
zinc	514	207	5000

(*) compiled from a) National Interim Primary Drinking Water Regulations EPA Office of Water Supply 1979
b) Water Quality Criteria Documents
Federal Register Vol. 45, No. 231, November 19

u = under detection limit (listed next to value)
* = refer to cover memorandum to the inorganic data for discussion of these values

This data suggests that:

- the actual direction of groundwater flow is possibly not in the direction which has been tentatively identified;
- ~~the complete or sample data for the 2 wells are suspect accuracy~~;
- hazardous wastes have been disposed of upgradient of the control well which have not been identified in past reports and may have migrated to this well.

Because of this uncertainty, it can not be determined if the inorganic contamination is originating on or off-site.

7.0 EVALUATION AND RECOMMENDATIONS

Based on existing data and documentation, further investigation is needed to assess a level of hazard associated with this site. Because of the toxic nature of many of the compounds (eg. 2,4-D, MCPA) which have been disposed of at PSL and the potential for off-site migration, the following recommendations should be considered:

1) There are a number of variations relating to the quantities and types of wastes which have been disposed of at PSL. Further investigation should be carried out to determine the validity of the sites disposal records.

2) Design and institute an aquifer test which would define the actual direction of

groundwater flow.

3) Resample all of the wells and determine why the upgradient well is more contaminated than the downgradient well.

4) Monitor the wells and determine if seasonal fluctuations of groundwater flow exist which could transport contaminates toward the on-site control well.

5) Collect subsurface soil samples adjacent to the hazardous waste disposal areas to determine if wastes are leaching from these areas.

6) The depth of the Ringhold Clay and the Yakima Basalts should be determined

to further investigate the possibility of groundwater contamination in the Yakima Basalts

These recommendations should be pursued on a medium priority basis.