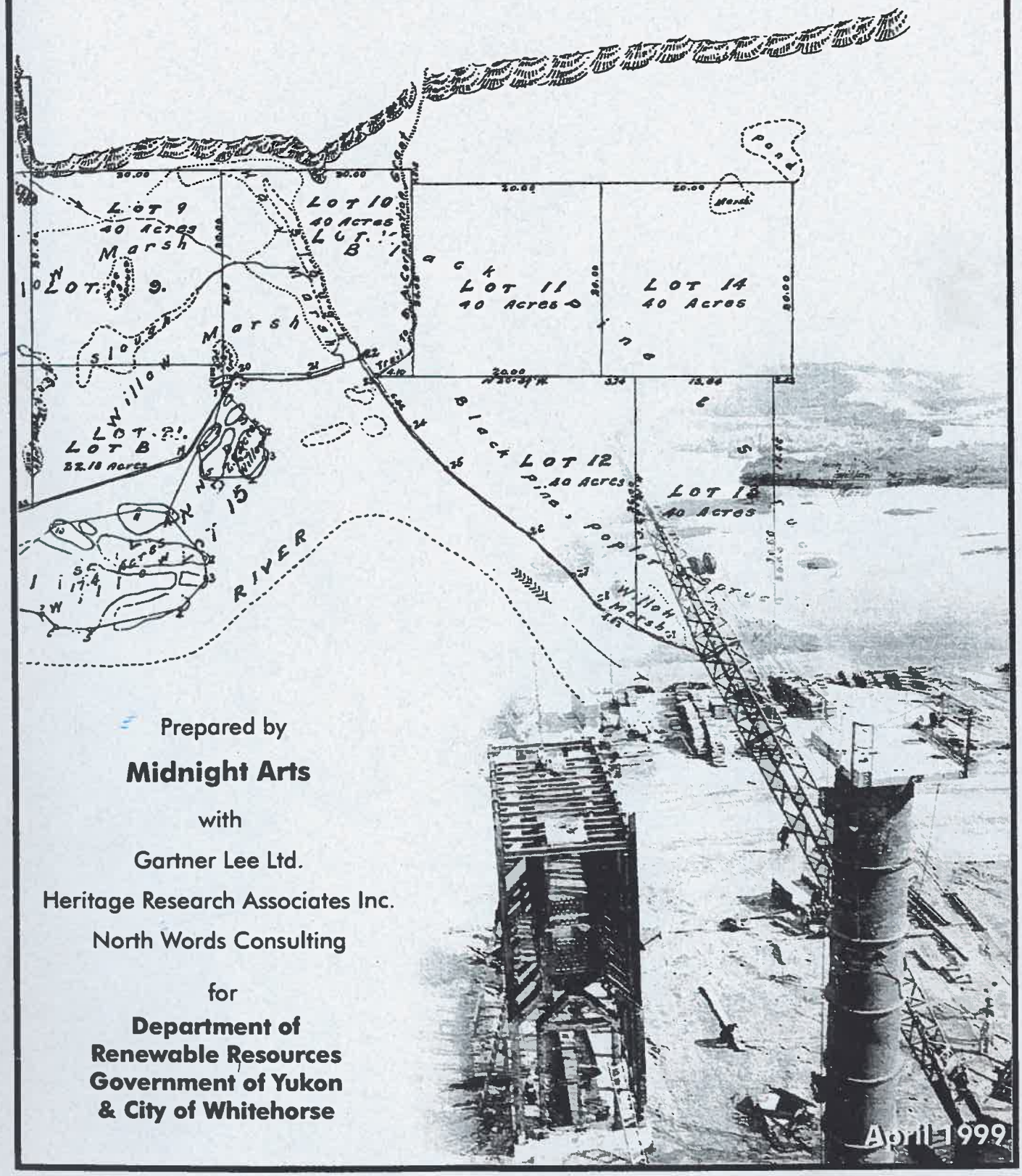
Marwell Industrial Area

Historical Research Project



Prepared by

Midnight Arts

with

Gartner Lee Ltd.

Heritage Research Associates Inc.

North Words Consulting

for

Department of Renewable Resources Government of Yukon & City of Whitehorse

April 1999

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Cover graphics: Portion of CLSR Plan 8406, 1900; assembling of steel work for crude oil furnace at Whitehorse refinery site, 1 Sept. 1943, *Yukon Archives, Finnie Coll.*

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(prepared by Forest Pearson, Gartner Lee Limited)

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Marwell Industrial Area: Historical Research Project

ACKNOWLEDGMENTS

Many people have contributed to this project. This report is a team endeavour. Robert J. Burns of Heritage Research Associates, Ottawa, reviewed formidable stacks of government documents at the National Archives of Canada. Leslie Hamson of North Words Consulting reviewed the U.S. Army records on microfilm at Yukon Archives. At Gartner Lee Limited, Forest Pearson prepared the maps and Lesley Gomm wrote the sections on refinery operations. Helene Dobrowolsky of Midnight Arts handled the remainder of the research as well as compilation and writing. Rob Ingram, also of Midnight Arts, edited and assisted with the report layout.

Goody Sparling, Lloyd Ryder and Laurent Cyr are all lifelong Whitehorse residents who shared their memories. Josée Bonhomme at Geomatics Canada made special efforts to help us out. I was given access to various Canadian government files by Vic Enns, of Environment Canada, Environmental Protection; Lorne Gay of DIAND, Renewable Resources; and Marjorie Fraser, Head, Land Dispositions. On the Yukon side, Greg Kent from Community & Transportation Services, Lands Disposition Section unearthed two boxes of files relating to Lot 263; and Kevin McDonnell compiled all the relevant material at the Department of Renewable Resources. Tom Martin, vice president of North 60° Petro Limited, hosted a site visit. Gary Hamilton of Golder Associates Ltd. and former White Pass employee Cheryl Sim were most helpful in explaining corporate changes over the past few years.

Kevin McDonnell was our genial project manager with input from his colleague, Bengt Petterson, and Lesley Cabott of the City of Whitehorse, Planning Department. This project was sponsored by the Government of Yukon, Department of Renewable Resources, Standards and Approvals Section and the City of Whitehorse, Department of Municipal Services.

Sincere thanks to all for your contributions. This report was prepared according to accepted historical research standards and to the best extent of available information. As neither the historical record nor people's memories are comprehensive, there are inevitably some gaps in the information.

Helene Dobrowolsky
Midnight Arts
April 1999

1.0 INTRODUCTION

Figure 1. "J. P. Lanius and B. S. Field tightening bolts on the floor of tank #10." YA. Finnie Coll.. PHO 142. 675.

The area of Whitehorse now known as the Marwell Industrial Area was first developed as an oil refinery during World War II. Construction of the Alaska Highway and commencement of the Canol project brought thousand of American soldiers and civilian workers to the north to work on these megaprojects. Soon the small downtown core was surrounded by sprawling camps, dumps, and new wartime structures. The refinery, erected in 1943/44, was designed to process oil pumped from the oilfields of Norman Wells. The facility began refining oil in April 1944 but operated for barely a year before closing down.

After the war and dismantling of the refinery, the area of the downtown tank farm was used by White Pass for nearly 40 years as a petroleum depot. Since then, government maintenance operations and the city's main industrial area has occupied most of the former refinery site. Wartime haste and waste, as well as ignorance of the long term effects of hydrocarbon wastes, has led to serious pollution problems in the Marwell area. In the postwar period, the dismantling the refinery and various industrial activities contributed to this situation.

The best-known site is the infamous Marwell tar pit. It appears to have originally consisted of refinery wastes but, as an established dump site, was added to over the years by the Canadian military and local businesses. After the pit caused a fatality in 1958, there was much research and discussion of how best to deal with the site. Unfortunately, none of this has led either to clean-up or consensus on which agency should take financial responsibility for this work.

Deposits of tarry material have been found on the surface at the North 60° Petro property and the grader station site. These may be a result of either refinery operations or postwar activities. Also, on the North 60° Petro property, a contaminated site was identified near the riverfront and may be related to the operations of a postwar petroleum depot. The soil is contaminated by petroleum hydrocarbons and metals. In 1998, this latter site and the Marwell tar pit were declared contaminated sites according to the Contaminated Sites Regulations under the Environment Act (Yukon).

The purpose of this report is to present and summarize the results of historical and archival research of the Marwell Industrial Area in Whitehorse, Yukon. For this project, Midnight Arts teamed up with three other specialists – Gartner Lee Ltd. of Whitehorse, North Words Consulting of Whitehorse, and Heritage Research Associates Inc. in Ottawa.

We have conducted archival and historical research of the Marwell Industrial area in order to:
(a) develop a site land use history to identify industrial processes and materials used on site, to identify work practices employed on site, and to identify facilities at the site which are in relation to the:

- Canol pipeline, refinery and hydrocarbon storage tanks, waste treatment and disposal facilities and other facilities relating to hydrocarbon processing or conveying for the Marwell Industrial area;
- Marwell Tar Pit (if different from the above);
- and other industrial activities at the North 60° Petro Ltd., 146 Industrial Road.

(b) trace the corporate status of those companies and agencies occupying and using the sites and facilities identified above from the time they were first occupied and used for industrial purposes through to the present day.

While not part of the terms of reference, the Yukon Government requested emphasis on identification of responsible parties in accordance with the Environment Act (Yukon). Responsible party means the person who had possession, charge or control of the contaminant at the time of its release into the environment.

Forest Pearson of Gartner Lee Limited has prepared four maps based on air photos: a refinery layout map showing the refinery structures in 1946 and three area maps showing overlays of former refinery structures on 1952, 1963 and 1994 air photos.

Note: Like most long-time Yukoners, I frequently use the term White Pass. The term is a colloquial one used since the days when the White Pass & Yukon Route was one of the Yukon's largest employers and had a great impact on the territorial economy. It doesn't refer to a specific company but rather is a handy short term to refer to one or all of the many historic operations of the White Pass and Yukon Corporation Limited, be they rail, trucking, fuel, land sales or navigation. HD

2.0 METHODOLOGY

There were two start up meetings with the clients to discuss the project and the methodology. Given the largeness of the area and the relatively short term of this contract, we discussed how the research could be focussed to be most useful to the client.

The following was determined:

- While a general history of the site should be prepared, the main focus should be on the wartime period and the operations and removal of the Canol Refinery, which appears to be the period engendering the greatest amount of pollutants.
- Given the fact that all U.S. wartime and postwar activities on the site had taken place with the authorisation of the Canadian government, it would be most fruitful to concentrate on wartime Canadian government records. If time allowed, there would be some research of U.S. Army records as well.
- The clients specified that, although they were interested in finding out about any potentially hazardous activities conducted by the refinery and other parties anywhere within the subdivision; the two properties of primary interest were Lot 263 and Lot 12 (REM). Both of these were officially designated as contaminated sites under the Environment Act (Yukon) in 1998 (Lot 263 REM, Marwell Tar Pit, 4 May 1998; Lot 12, North 60° Petro Ltd., 146 Industrial Road, 4 September 1998). These are the properties for which they wanted detailed site histories and records of all land transactions.

Several avenues were pursued to research the site. Various government agencies had already conducted much research on the history of the Marwell tar pit, as well as research regarding the nature of the contamination at the tar pit site and possible clean-up measures. Their files were reviewed. Materials examined at Yukon Archives included historic photos, maps, newspapers, Yukon Government records, U.S. Army records on microfilm and White Pass corporate records. Preliminary findings were sent to Heritage Research Associates in Ottawa and, from that point, there was a regular exchange of findings between Whitehorse and Ottawa. A partial search was conducted of the U.S. Army records on microfilm at Yukon Archives. Three longtime Whitehorse residents were interviewed, two in detail, about their memories of the site.

The technical research was based partly on archival records and partly on literature regarding historic petroleum production in Canada. A site visit was made to the North 60° Petro facilities on March 31, 1999.

The following sources were consulted during this research:

- National Archives of Canada
- National Library
- Canada, Energy, Mines & Resources, Legal Surveys
- Canada, DIAND, Federal Lands
- Canada, Environmental Protective Services
- Yukon, Dept. of Community & Transportation Services, Lands Disposition Section
- Yukon, Dept. of Justice, Land Titles Office
- Yukon, Dept. of Renewable Resources, correspondence files
- Yukon Archives

3.0 BACKGROUND SUMMARY

Up until the early 1940s, the flat area north of Whitehorse – a mixture of swamp and forest – was largely unoccupied except for a short-term unsuccessful farming venture and some First Nation families who stayed in the area when they were visiting town. Although a First Nations reserve was established here in 1916, few people actually used the site.

In 1943-44, civilian contractors built a large oil refinery in Whitehorse as part of the World War II defence project known as the Canol Project or Canol No. 1. The main tasks of this ambitious, and ultimately unsuccessful, project involved developing the Norman Wells oilfields, building a road and four-inch pipeline from Norman Wells to Whitehorse, and constructing a refinery to process the crude oil from Norman Wells. A series of subsidiary projects included construction of additional pipelines: from Skagway to Whitehorse and building a tank farm near the airport (Canol No. 2); from Carcross to Watson Lake (Canol No. 3); and from Whitehorse to Fairbanks (Canol No. 4).

The refinery complex occupied a large area to the north of downtown Whitehorse and the British Yukon Navigation Shipyards. The refinery area included all or part of Group Lots 10 to 14, Group 804; and Lot 263 to the west, unoccupied crown land surveyed in 1944. These properties were a mix of privately-owned property belonging to the British Yukon Railway Company and crown land. The refinery operated for about a year, shut down, then in 1947/48 was dismantled and moved to Edmonton to process crude oil from the recently-discovered Leduc oilfields.

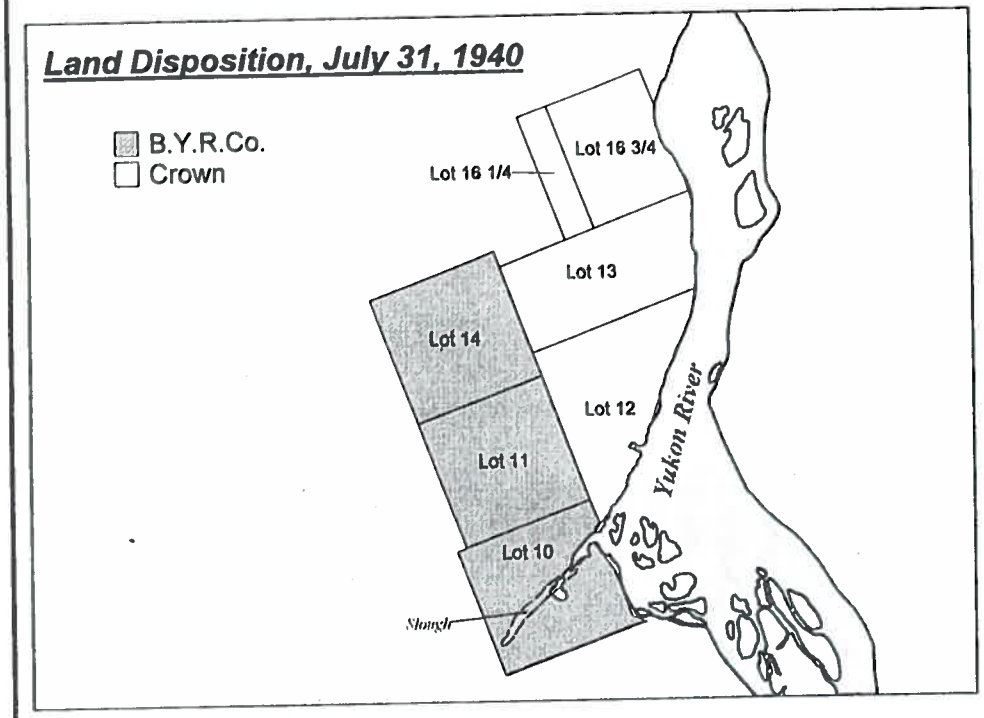
On April 1, 1946, the Canadian government officially took charge of the portion of the Alaska Highway on Canadian soil. The Royal Canadian Engineers took over highway maintenance from the American armed forces and continued this work for 15 years. On April 1, 1964, they transferred this duty to the federal Department of Public Works.

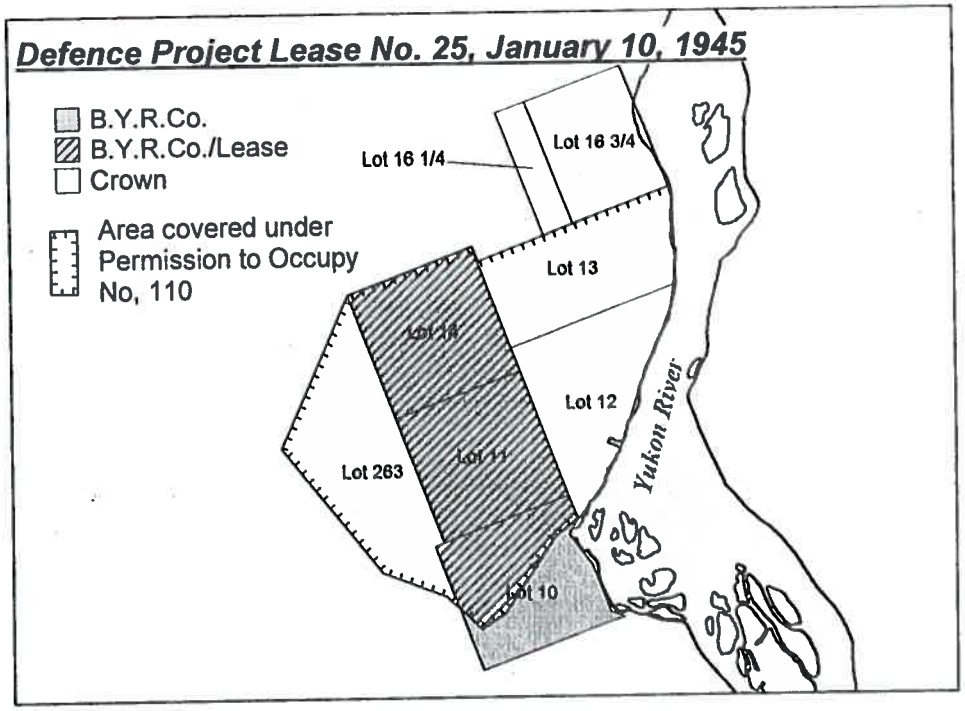
The Canadian army moved into part of the refinery site ca. 1948. The military used the former refinery maintenance building to look after vehicles and heavy equipment. Eventually the Canadian government acquired this property from White Pass in exchange for other lots in the area. During this exchange, White Pass acquired the crown property occupied by spherical refinery tanks that became known as the petroleum bulk plant.

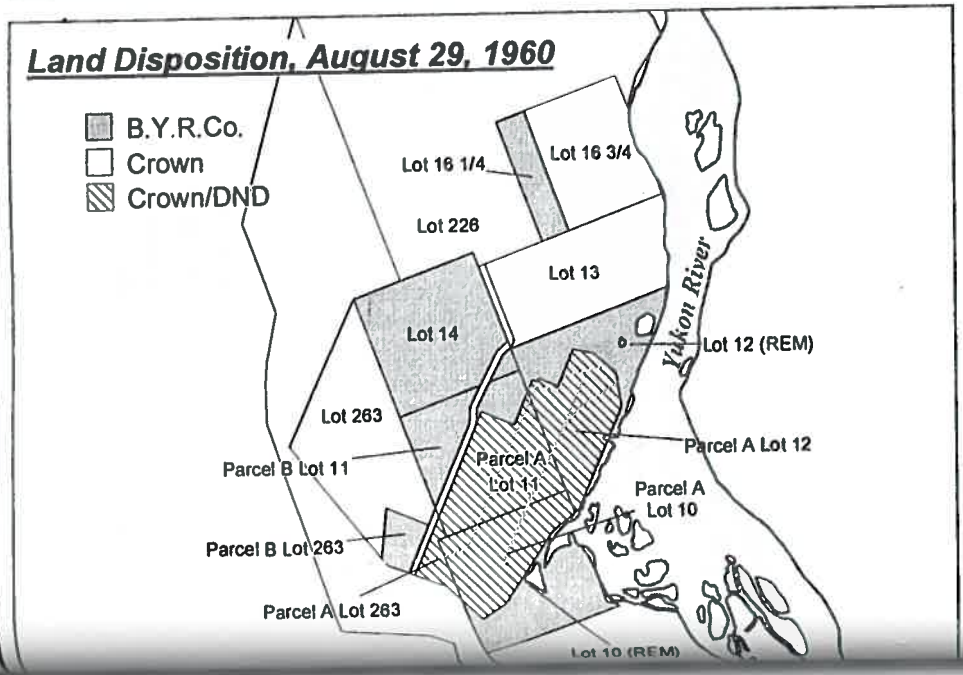
During the 1950s, a number of businesses began moving into this area. One of these was the Marwell Construction Company. This large firm was responsible for several major construction projects in Whitehorse including the Robert Campbell Bridge, the hospital, Whitehorse Elementary School and the Taku (now the Bonanza) Hotel. Their offices, barracks and cookhouse were all located in what later became known as the Marwell Industrial Area.

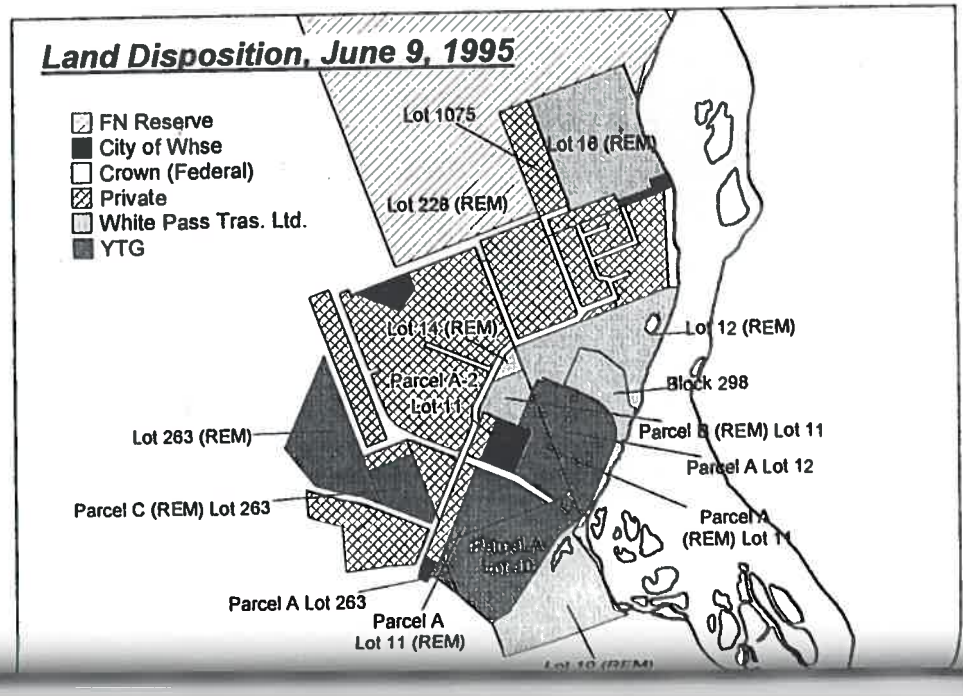
As well as some tanks and other large structures, the Canol Refinery left a less savoury legacy. The infamous Marwell tar pit was first identified in government correspondence in the early 1950s and was the site of a fatality in 1958. Other sites were found on the property now occupied by North 60° Petro and the grader station. Both areas were officially declared contaminated sites in 1998. This report will document the activities and associated land transactions in the Marwell Industrial Area from 1900 to the present.

FIGURE 2: OVERVIEW OF HISTORIC LAND DISPOSITIONS, MARWELL AREA









HISTORY of the MARWELL INDUSTRIAL AREA

4.0 THE EARLY DAYS

4.1 Founding a Townsite

In 1899, the consortium building a railway from Skagway on the Alaskan coast into the Yukon interior determined that the best site for the rail terminus was at the foot of Whitehorse Rapids on a large flat on the west side of the Yukon River. This part of the river was already established as the head of steam navigation on the Yukon and was a logical place to transship goods from the railway onto ships bound downriver to Dawson and the Klondike goldfields.

The railway company was seeking not only a right-of-way for the tracks and grounds for the railyards and depot, but was also planning to establish a townsite that would replace the small community across the river. In 1898, the original settlement of White Horse had grown up at the end of the Macaulay tramway. Here sternwheelers from Dawson tied up at the bank to load freight transported over the tramway. The railway envisioned a much grander operation however.

In October 1899, the railway commissioned a survey of the land they had selected. This property amounted to just under 800 acres of which the railway later purchased all but two 40-acre lots north of town. The townsite itself only occupied 160 acres, an area bounded by the river to the east, the escarpment, Strickland Street to north and Hawkins Street to the south. The remainder of the property was sparsely occupied by railway operations, other riverfront businesses, squatters and a few rural operations such as a slaughterhouse, ranches, fur and hay farms.

4.2 The 1899 Survey, CLSR Plan 8406 & Subsequent Transactions

The White Pass and Yukon Railway, operating under the name of the British Yukon Mining, Trading and Transportation Company, commissioned a survey of the entire townsite flat on the west bank of the Yukon River and part of the escarpment to the west. Dominion Land Surveyor, H. G. Dickson laid the site out in 19 large lots most about 40 acres in area. This survey was registered in Ottawa on February 8, 1900 as Plan 8406. According to On July 7, 1900, the company officially changed its name to the British Yukon Railway Company, which affected on its subsequent land transactions.[1]

With two exceptions, the large Group Lots were purchased by the railway company through proxies from the federal government for a total of $34,000. At the upriver end, Lot 19 housed the rail yards. Immediately north of Lot 19 was the townsite area. Lots 1-4 were subdivided into blocks and lots and, up until the outbreak of WW II, contained the town of Whitehorse. The shipyards occupied part of Lots 5 and 8 and the federal reserve along the waterfront. To the north were Lots 10 to 14, and 16. (See figure 3 on following page.)

According to White Pass land records, all these group lots were patented on March 3, 1900 to the following individuals who were acting as company proxies: Lot 10 – Harry James Patterson; Lot 11 – Jay Wiley, Lot 12 – John Thomas Bethune, Lot 13 – Italia Louise Adair, Lot 14 – Henry C. Scott, Lot 16 – Victor Ignatius Hahn. The proxies in turn transferred their interests in the properties to Samuel H. Graves, the president of White Pass on December 20, 1899 in Seattle, Washington.[2] Not all of these transactions were formalized, however, and at least two lots – 12 & 13 – were never patented.[3]

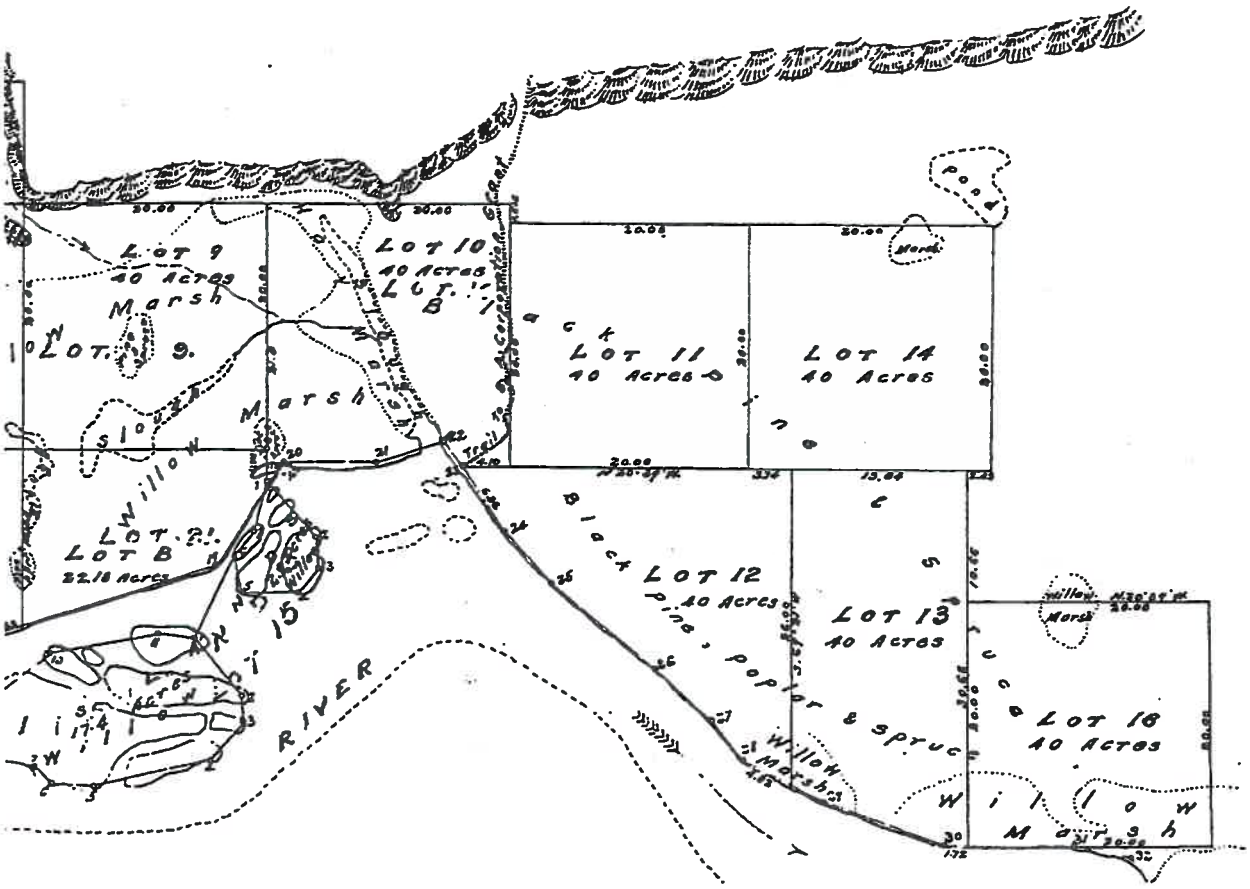


Figure 3. Portion of CLSR Plan 8406. 8 February 1900. Surveyed by H. G. Dickson, October 1899.

4.3 The North End of Town

A large slough running east-west through Group Lot 10, formed a natural barrier between the shipyards and the most northerly end of the townsite flat. The area later occupied by the Canol refinery was largely unoccupied for over 40 years. There was little activity in this area before World War II although there were various development plans in the early years.

4.4 NWMP Headquarters?

Up until 1899, the North-West Mounted Police based their headquarters in the southern Yukon at Tagish Post, on the Tagish River between Tagish and Marsh lakes. In 1898, this was on the main route taken by Klondike stampeders entering the country over the Chilkoot and White passes. The construction of the railway, however, meant the bypassing of the all-water route through the headwater lakes and part of the Yukon River to the head of Miles Canyon. When Superintendent Z. T. Wood of the North-West Mounted Police began planning the move of his post to a more strategic location, he initially selected Group Lots 12 and 13 on the waterfront nearly a mile north of Whitehorse.

This is his description of the site:

> *The officials of the railway company gave me to understand they were quite willing to give any site chosen by the police, free of charge. The front of the lots*

face the south, being in a bend in the river and are admirably adapted for a barrack site; one lot is almost free of timber and the second is thickly covered with jack pine, which forms a good protection against wind, etc. In this bend of the river the current is not swift, and the water approach is everything that could be desired. Even at low stage or water, there is an easy approach for steamers. A wharf could be built with little or no expense.[4]

One year later, this decision was reversed. Superintendent Wood became commanding officer of the Yukon, based in Dawson, and his replacement, Supt. Primrose, determined that the most convenient site for the Mounties and the citizens they served was right in downtown Whitehorse. He found the downriver site, to be too far away both for the public to reach police services and for police access to the railway, telegraph office, post office and stores. As well, Primrose mentioned an unfavourable report from the surgeon "from a sanitary point of view," possibly due to the swampy ground nearby.[5]

Although the police decided not to settle on Lots 12 and 13, White Pass chose not to exercise its option to purchase the lots and they remained unoccupied crown land.

4.5 Homesteading & Farming

On August 29, 1905, John Edward French and Arthur Dean Goodell applied to purchase Lots 12 and 13 in Group 5, along with 160 acres of unsurveyed land north of lots 13, 14 and 16. The two "agriculturists" offered to pay $5 per acre for the surveyed lots and $1.50 for the unsurveyed land. In November, French complained that the ten dollars an acre being charged by the government was too much to pay for the land "as the timber has been all cut off it and it is fit for nothing except to lose money on it trying to farm it." There was an added complication as the territorial government was planning to set aside ten acres of Lot 12 for a cemetery reserve.

Two years later, French applied for another homestead lease, just for Lots 12 and 13. His farming efforts were unsuccessful. His partner had left the country, clearing the land proved to be time-consuming and expensive, and he wished to apply for a much smaller parcel. Eventually with intercession of the Commissioner, French was allowed to apply for five acres within Lots 12 and 13, land upon which he had already done some clearing and erected a few buildings. This application was cancelled in 1911 when French failed to make his first payment on the land within the 60 days allowed. When the young Lloyd Ryder played on the site in the late 1920s and early 1930s, the homestead had been long abandoned. Mr. Ryder only remembers one old building and great mushroom picking.[6]

The commissioner's files include another application for the site in June 1912 by Edward A. Dixon for Lots 12 and 13, later recorded as land sale number 1628. There is no further correspondence in connection with this application, no evidence that any farming activity took place, and the sale was later cancelled in federal records.[7]

4.6 Lot 226: Indian Reserve

North of the large White Pass lots is the First Nations Reserve known as Lot 226. This was surveyed in 1916. The story of the establishment of this reserve still rankles Whitehorse Elders. In the fall of 1915, the Indian Agent, RNWMP Superintendent, and White Pass all cooperated to relocate a First Nations community from the riverfront, at the present site of Rotary Peace Park,

to property about two miles north, or downriver, of town. This was at least partly in response to a racist newspaper campaign to have the village removed from the sight of townspeople to a more remote location .[8]

When the first site chosen was found to still be within White Pass property, the people were relocated even further north. Much of the 320 acres set aside for the reserve was on swampy ground or land "of little prospective value for any other purpose."[9] On January 6, 1921, Lot 226, Group 5 was set apart as a reserve by Order-in-Council P.C. 1921-3249.

Occasionally, First Nations people stayed in this general area when they came to town, but the reserve didn't really get developed until an Indian Affairs housing program of the 1950s. Today the Kwanlin Dun First Nation holds this reserve. There are still some buildings here, but it is mostly unoccupied since the First Nation settlement relocated to the Mount McIntyre subdivision in the early 1980s.

5.0 WORLD WAR II & THE CANOL PROJECT

The Canol Refinery

The story of the project from its inception to its completion, cannot fail to awaken a profound admiration in us all. Not only is it another outstanding engineering feat, comparable in its magnitude and difficulty, with the construction of the Panama Canal, the Boulder Creek Dam and the Alaska Highway, it is likewise another outstanding record of human skill and ingenuity. Furthermore, it is another striking demonstration of the close and cordial co-operation between our two countries which is expanded and strengthened with the years.

– *Whitehorse Star*, Editorial, 5 May 1944.

Canol, short for "Canada" and "Oil" has been called everything from an "epic" which reinforced the close and harmonious relations between Canada and the United States, to a junkyard of military stupidity. The latter is probably closer to the truth.

– Richard Diubaldo, "The Canol Project in Canadian American Relations."

Up until the spring 1942, Whitehorse was a placid little town of about 350 souls – the population doubling every spring with the arrival of the shipyard and sternwheeler crews. The decisions to construct the Alaska Highway, then the Canol pipeline and refinery, changed all that in a hurry.

Thousands of soldiers and civilian workers flooded into Whitehorse by plane and the White Pass and Yukon Railway. Immense camps, first tents then more permanent structures, were set up on the outskirts of town. Restrictions were placed on civilian travel and local residents were no longer permitted to enter many areas. There was a charged atmosphere of wartime urgency, secrecy and extreme haste. Local people heard nothing of the Canol project until the pipeline was well under construction. The refinery construction site was also a mysterious place. It was fenced and an MP stood on guard at the gate ensuring no one could enter or leave without the proper authorization.[10]

This wartime haste outran due bureaucratic process. Although refinery construction was underway by the spring of 1943, it was not until late 1944 that a procedure has been finalized between the Canadian and American governments for obtaining lands for American funded defence projects. A signed lease and 'Permission to Occupy' number were not issued until January 1945. There were several other factors and land transactions that affected land tenure at the refinery site. These included a railway spur line built to the site, the tank farm up the hill and the pipeline linking it to the refinery, and the survey of crown land at the west end of the site.

Figure 4. Official opening of the Canol Refinery in Whitehorse, 30 April 1944.
YA 82/403. Misc. II Coll., PHO 50, folder 10. #1.

5.1 The Treaties

On 30 April 1942, less than three months after a route had been chosen for the Alaska Highway, an order was given to construct a pipeline between Whitehorse and Norman Wells, to build a refinery at Whitehorse, and to drill additional wells in the Norman area to increase the field's production.[11] The decision was made hastily by U.S. Army officials based on little or no expert opinion regarding the feasibility of the project. Imperial Oil was contracted to develop the oilfields. Standard Oil was to operate the pipeline and refinery. The joint venture of Bechtel-Price-Callahan took on the contract to construct the pipeline, road and refinery. Below is a listing and brief descriptions of various agreements between the U.S. and Canada having a bearing on the refinery, wartime land tenure and postwar disposition of the facilities and property.

After some hesitation, Canada formally acceded to the project in 1942 via an exchange of notes June 27 and 29 (**Treaty Series 1942, No. 23**). The U.S. government undertook to survey and construct the pipeline and arrange for refinery construction. The Canadian government agreed: **"to acquire any essential land and necessary rights of way that may be involved in the projects (including the settlement of all local claims in this connection), title to remain in the Crown in the right of Canada."** At end of the war the two governments would jointly evaluate the pipeline installations prior to disposal and the Canadian government would be given first option to purchase. Should neither the Canadian government nor a private company desire to purchase the properties, the disposition would referred to the Permanent Joint Board of Defense.[12] This initial project became known as Canol No. 1.

This initial agreement was followed by subsidiary agreements for Canol No. 2, to build a pipeline from Skagway to Whitehorse to carry fuel transported up the west coast (**Treaty Series 1942, No. 24**),[13] Canol No. 3, to lay a pipeline from Carcross to Watson Lake and Canol No. 4, to build yet another pipeline from Whitehorse to Fairbanks.[14]

When the U.S. army began its great influx of men, materiel and equipment into the Yukon, a tremendous strain was placed on the resources of White Pass and Yukon Railway. In August 1942, the U.S. Army asked the company to handle 2000 tons per day. Wartime restrictions on labour and rolling stock made it impossible for the railway to comply and the president of White Pass suggested that the U.S. Army take over the operation of the White Pass and Yukon Railway for the duration of the war. On October 1st, the lease went into effect with the 770th Railway Operating Battalion in charge of operating the railway.[15] This arrangement was formalized by the Canadian government on November 6, 1942 with the passing of **Order in Council P.C. 10067**, authorizing the Government of the United States to lease of the White Pass and Yukon Route Railway, and maintain and operate it for the duration of the war. This later became incorporated in a treaty between Canada and the United States the following February (**Treaty Series 1943, No. 3**).[16] According to item 3 of P.C. 10067: "The word 'railway' in this Order includes all branches, extension, sidings, stations, depots, wharves, rolling stock, equipment, stores, bridges, tunnels and other structures, property real and personal and works connected therewith."

There were also a number of treaties dealing with the post-war disposition of defence projects built in Canada by the United States, and some agreements dealing specifically with the Canol Project. The most relevant of these are listed with identification of a few key points.

• **Canada Treaty Series (CTS), 1943/2**, Exchange of Notes, 27 Jan. 1943, between Canada and the United States of America constituting an agreement regarding the post-war disposition of defence projects and installations constructed in Canada by the government of the United States.[17]
This provided more detail for post-war procedures for disposing of American installations but did not address the issue of land tenure or responsibility for environmental cleanup in any way.

• **Canada Treaty Series (CTS), 1944/35**, Exchange of notes, 22 November and 20 December, 1944, between Canada and the United States of America constituting an agreement concerning the post-war disposition of United States defence projects in Canada.[18]
The US wished to commence disposition procedures before the end of hostilities. They agreed to supply lists of immovables within three months of approval of the agreement, both countries to appraise same and Canada to pay agreed amounts to US. This is later changed.

• **Canada Treaty Series (CTS), 1945/3**, Exchange of notes, 26 Feb. 1945, between Canada and the United States of America constituting an agreement concerning the Canol project.[19]
The American government wished to dispose of the Canol installation prior to the end of the war if possible and suggested an early joint evaluation. Canada agreed.
In a meeting of the Canadian Cabinet War Committee of 7 February 1945, it had been already decided that "it is not in the Canadian interest to take over Canol at any time or accept responsibility for it . . ." based on the fact that petroleum products from the pipeline would "for an indefinite period" cost more than imported fuel in Northwestern Canada.[20] It wasn't until August 1945, that Canada notified the U.S. that it was waiving its option to purchase.[21]

• **Canada Treaty Series (CTS), 1946/41**, Supplementary exchange of notes, 7 Nov. and 30 Dec. 1946, between Canada and the United States of America regarding the disposal of the Canol project, effective 1 Mar. 1947.[22] This treaty contained specific policies for disposal of Canol installations.
- contained the following references to land title for purchasers of Canol installations:
  "A. (i) The United States Government may, if it so desires, transfer the crude oil facilies of the Canol Project, or any part thereof, to private ownership, subject to the laws of Canada and the territory or territories in which such facilities are situate. Such transfers shall be exempt from import duties and excise taxes.
  (ii) The land, rights of way, riparian rights and other easements, supplied by and owned by the Canadian Govemment and required for the satisfactory utilization of the facilities, may be leased or acquired by the purchaser or purchasers on equitable terms from the Canadian Government under the laws of Canada and the territory or territories concerned.
  (iii) The land, rights of way, riparian rights and other easements, supplied by but not owned by the Canadian Government and required for the satisfactory utilization of the facilities, will be acquired by the Canadian Government and transferred to the purchaser or purchasers at his or their expense if such purchase or purchasers are unable to lease or acquire such land, rights of way, riparian rights and easements on equitable terms from their owners."
- also discusses the situation for facilities being removed from their original site:
  "B. If the United States Government does not dispose of any of all of the facilities under the terms of paragraph A above, the Government, its agents, or its successors in interest may remove any or all of the facilities, the Canadian Government will facilitate such operations

by providing for continuance of the rights referred to under . . . The American notes of June 27, 1942. . . "

- mentions Canadian purchase of American facilities:

"C. the Government of Canada may purchase from the United States through the appropriate governmental agencies such of the facilities not disposed of under A or B as that Government may desired to obtain for its use or disposition.

-also discusses how to handle facilities that couldn't be sold or were not desired by either government:

"D. any of the facilities not disposed of under paragraphs A., B, and C above, after it. About two years from the date of this agreement, shall, at the option of the United States, either be removed from Canada by the United States authorities or shall be left in situ and regarded as of no value unless put to beneficial use. The principal is recognized that if any such property should thereafter be put to beneficial use the United States Government should receive fair compensation."

In a response on December 30th 1946, a Canadian official took some pains to point out none of the American provisions "impose on Canada any of responsibility for the custody of any of the Canol facilities at any time in future" and that: "the Canadian Government does not accept responsibility for the payment of fair compensation to the United States Government should, at any time after the two-year period, it to be brought to our attention that any of the Canol facilities are being put to beneficial use by private interests."

5.2 The Canol Refinery

The decision to construct the Canol Project was reached by the War Department at the end of April 1942, and assigned to the Corps of Engineers. The firms of W. A. Bechtel Co., H. C. Price Co., and W. E. Callahan Construction Co. were invited to consider the project. A contract for construction of a crude oil pipeline and the design and construction of the refinery and petroleum facilities was entered into on May 4 and executed on May 20 between the War Department and Bechtel-Price-Callahan, a pro-tem partnership of the above three firms and six of their associates: Bechtel Company, J. H. Pomeroy and Co., Inc., B M P Company, Gunnar and Shirley Company, R.A. Coynes and Paul Grafe. At the same time the Standard Oil Company of California was designated as consultant on the design and construction, and the firm of Gordon Turnbull and Sverdup & Parcel was selected by the Army as architect-engineer for the project. The proprietors of the Norman Wells field, the Imperial Oil Company, were responsible for the production of oil, while the Standard Oil Company of Alaska - an affiliate of Standard of California – was to operate the pipeline and refinery when they were built.

- Richard Finnie, in: *Canol, The sub-Arctic Pipeline and Refinery Project constructed by Bechtel-Price-Callahan for the Corps of Engineers United States Army, 1942-44.*

Initially, the optimistic – and unrealistic – plans for Canol called for the pipeline and refinery to be operational by October 1, 1942, a mere five months after the directive was issued.[23] Civilian contractors did not actually start work on the refinery site until April 1943, clearing and levelling the site while refinery plans were still being completed, and land tenure had not yet been addressed.

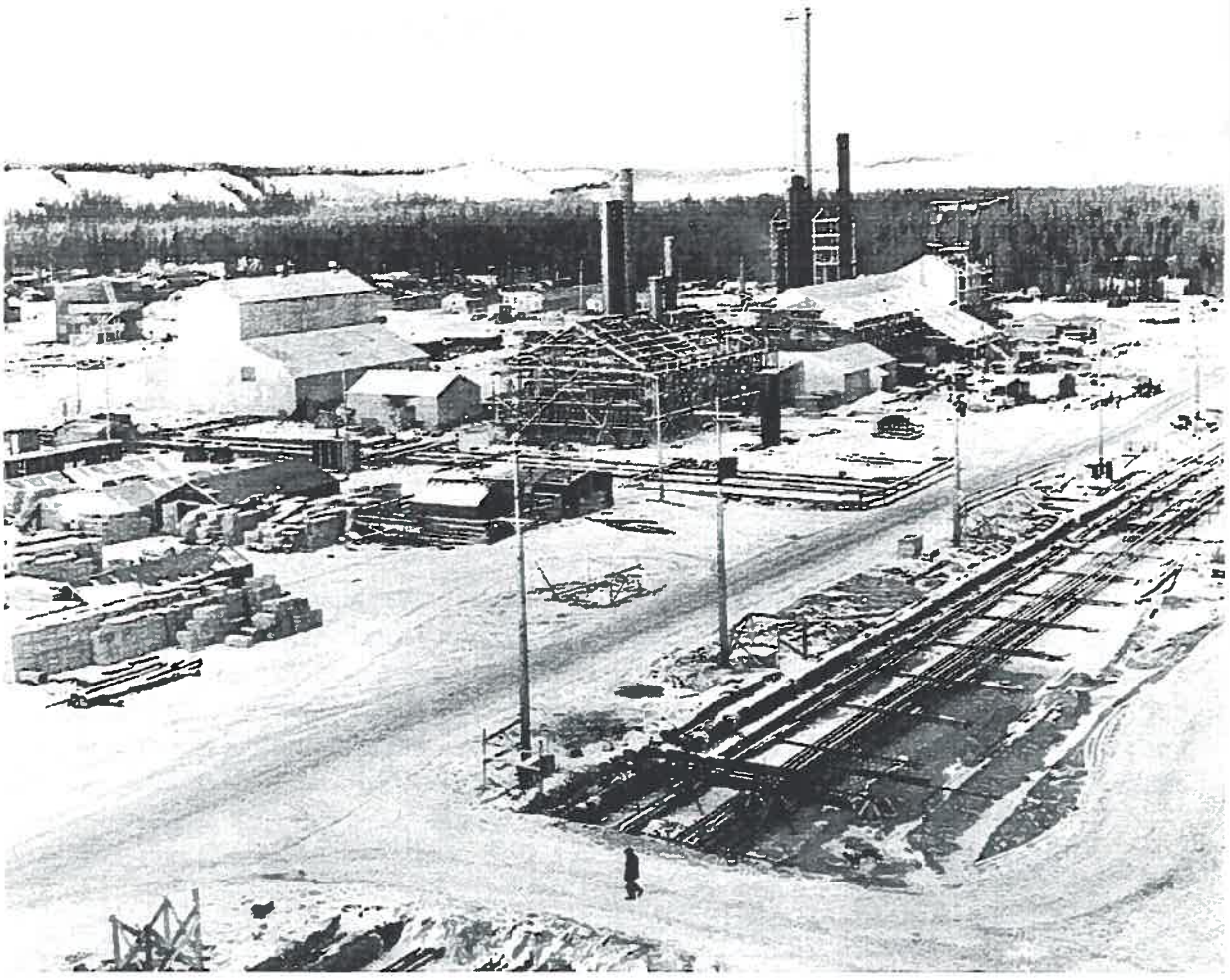


Figure 5. "Whitehorse Canol refinery: caustic treatment building. with alkylation unit under construction and piping trench in foreground. 29 October 1943." YA. Finnie Coll.. PHO 141. 456.

Richard Finnie toured the upper tank farm and the refinery site on 8 July 1943 with Captain Walter H. Parsons, area engineer. This is his description of that visit:

> *. . . The bottom of one of the tanks was to be repaired; it had been leaking at the rate of a barrel an hour. All the gasoline tanks were finished, although only several were in current use. A 5,000 barrel water tank was nearing completion.*
>
> *We drove to the refinery site, which along with the new Northwest Division Camp, had been started about April 1. The location appeared to be ideal, for it was on a gravel bed just above the river level with a convenient borrow pit. Pipe was being stockpiled, a cracking tower and other refinery parts had been unloaded in the yard, a railroad spur was being constructed, tank steel from the Corpus Christi refinery was being readied for assembly, concrete forms had been poured for the refinery foundation.*[24]

A railway extension was built into the refinery area. Due to the wartime shortage of steel, the rails were taken from a long-abandoned spur extending from McCrae to the former Pueblo mine site in the Whitehorse Copper Belt.[25] Transporting the immense pieces of refinery equipment over the narrow gauge railway from Skagway to Whitehorse proved a tremendous challenge.

"The 770th Railway Battalion, which operated the White Pass & Yukon through two winters, performed wonders of ingenious contriving to carry some of the larger parts of the refinery over the "hump."

"At times, the proportion of the dismantled refinery pieces were so near to being over-size that in some cases planks were greased along the rocky curves to ease the shipments past cliff walls and through narrow tunnels."

– *Whitehorse Star*, 5 May 1944.

Work continued over the next nine months. Many large fuel tanks, of different sizes and shapes, were assembled. According to Mrs. Gudrun, or 'Goody,' Sparling her late husband Joe Sparling did a lot of the construction in the refinery area. Apparently Joe came north to work on the Alaska Highway with Bechtel-Price-Callahan out of San Francisco. After the Alcan was finished, he teamed up with Eddy Davis to form the company Sparling-Davis. They built pipeline crossings for Imperial Oil and TransMountain. Her husband's field was tank building. He was in charge of building the tanks at the tank farm in Hillcrest and the spherical tanks at the refinery area.[26]

Up on the escarpment, what is now the Takhini area, was being cleared for Standard Oil headquarters and housing for refinery employees. On one early map, this area is described as "Canol Town."[27]

In a large picture book, glorifying the Canol project, Richard Finnie described the refinery structures "as symbols of the triumph of modern industrial science in the Far North." From his subsequent description, it becomes obvious that the refinery complex was actually a grab bag of used and secondhand equipment scavenged from all over North America.

> *The construction of the Whitehorse refinery was a major effort, entailing much ingenuity and improvisation at a time when few new materials were obtainable and transportation was difficult. The thermal cracking unit, part of the crude unit and most of the tankage came from a surplus refinery at Corpus Cristi, Texas; the boilers were from an old power plant at Hamilton, Ontario; and the turbines and generators were from an idle mill at Pinedale, California. Various other parts were picked up from about 2000 suppliers throughout the United States.*[28]

The refinery facilities were still incomplete when the grand opening ceremonies were held on April 30, 1944. Crude oil had started flowing through the pipeline from Norman Wells two weeks earlier. The first gasoline was produced in the crude distillation unit on 24 April.[29] It wasn't until November that the refinery finally began producing aviation gas. Four months later came the announcement that the pipeline and refinery were to be shut down.

Throughout its construction and brief operating period, the refinery had been plagued by delays, faulty equipment and other operating problems. The Canol Project ended up costing American taxpayers $134,000,000 with the refinery costing nearly $27,000,000 – about 2.2 million more than originally estimated.[30] Crews laid a total of 1600 miles of pipelines. When pumping stopped in early March, the output of the Norman Wells field was 1,977,342 barrels. During the first nine months of pipeline operation, there were 46,000 barrels of oil spilled, much of it directly into the Mackenzie River.[31] In total the refinery produced 866,670 barrels of products, which amounted to 88% of the crude oil supplied to the refinery.

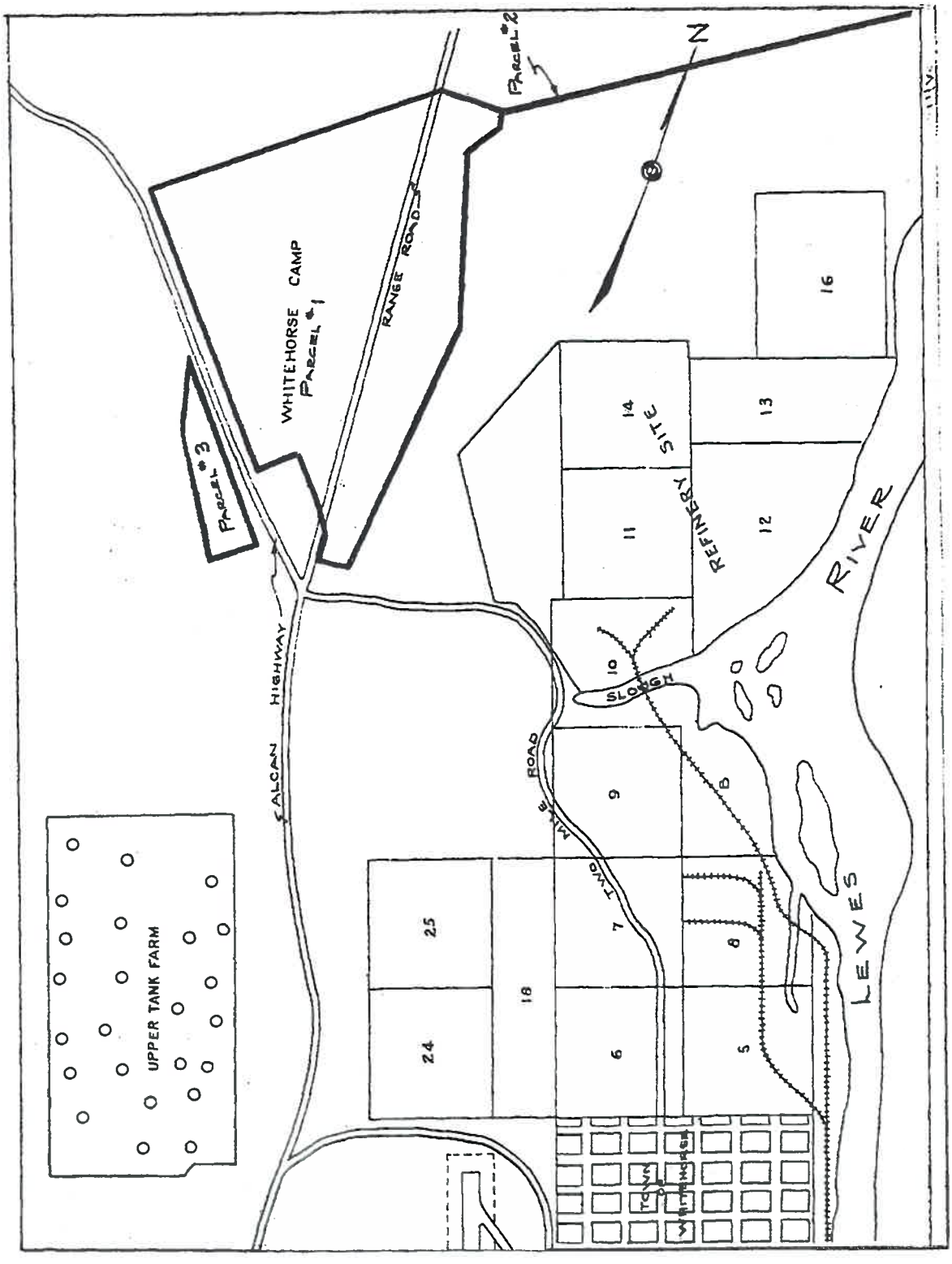


Figure 6. Plan showing Upper Tank Farm, refinery area & refinery spur. YA, RG 91, Series 8, f. 1, GOV 2073.

5.3 Refinery Land Tenure

5.3.1 The Refinery Site

Before any lease was even considered by the Canadian government, the U.S. Authorities had to obtain permission from the Special Commission on Defence Projects in Northwest Canada. In May 1943, the Canadian government had appointed Major General W. W. Foster as a special Commissioner to strengthen the Canadian presence in the Northwest and to oversee American activities.[32] All requests for land and approvals for American projects had to be routed through his Edmonton office. The actual lease approvals for Northwest Canada were handled by the Department of Mines and Resources. It was some months, however, before the overworked and overwhelmed officials in Whitehorse and Dawson caught up with the policies as they were developed. In the spring of 1944, C. K. LeCapelain, Liaison Officer for DMR, moved to Whitehorse to assist the overworked offices of the lone land agent in Whitehorse and the territorial Controller in Dawson in handling land transactions.

According to White Pass records, work on the refinery area began under the authorization of an unsigned and undated, "**Right-of-Entry,**" to acreage Lots 10, 11 and 14 issued by White Pass to the U.S. Army.[33] On August 2, 1943, Reuben L. Tatum, Lt. Col., Corps of Engineers wrote to L. Higgins, Dominion Land Agent of Whitehorse, submitting the original application for refinery site with attached copies of legal description, proximity map and tract map. The final paragraphs of his letter read:

> *Since the land in question is for a construction project permanent in character within the Dominion of Canada, the land should be furnished by the Canadian Government in compliance with the agreement 'to acquire any land and necessary rights-of-way that may be involved in the project (including all local claims in this connection) title to remain in the Crown in the right of Canada.'*
>
> *It is requested that appropriate action be taken to furnish subject property.*[34]

A week later the proper routing had been sorted out and Lt. Col. C. M. Clifford of the U.S. Corps of Engineers wrote to Major General Foster again requesting land required for the Refinery Site stating in part, "It is requested that action be initiated for the making available of this site to the United States of America and the acquisition of private interests, if any are outstanding."[35] This request was then routed to the Department of Mines and Resources on August 17th, and the property listed as Tract No. 13.

That same month, the U.S. also requested lands for the Upper Tank Farm and an area identified as a Camp Site for housing for refinery employees. See Figure 6, a sketch map showing all three properties and the refinery spur line. Negotiations for the refinery site were complicated by the fact that part of the land was privately owned by the British Yukon Railway Company (Lots 10, 11 & 14) and the remainder was on crown land (Lots 12, 13 & an unsurveyed parcel to the west).

LeCapelain recommended that the refinery boundaries be surveyed. In May 1944, he wrote his superior stating: "The plant is a valuable piece of property and its boundaries should be defined and the Dominion obtain title to the land so that they will be in a position to offer it for sale after the war, in accordance with the terms of the International Agreement and, with a minimum of complications attached."[36] The Canadian government, however, were wary of taking full responsibility for the site.

In October 1944, H. C. Bingham, D.T.S. completed his survey of the 53 acre triangular lot immediately adjoining the west side of Lots 11 and 14. This property later became known as Lot 263, Group 5. The entire refinery property was now surveyed and ready for an accurate legal description and issuance of a lease.

Although the refinery lease and Permission to Occupy numbers appear on a list of leased properties in November 1944; it wasn't until January 10th, 1945, nine months after the refinery began operation, that Defense Project Lease No. 25 was signed by Charles Camsell, Deputy Minister of Mines and Resources, and C. J. Rogers, president of the British Yukon Railway Company for the portion of refinery property owned by the British Yukon Railway Company. The federal Permission to Occupy, No. 110, was granted for the entire refinery property, both crown and private lands. In February, G. A. Jeckell sent a cheque for $1.00 to C. J. Rogers, President of WP&YR, covering the first year's rental from July 1, 1944 to June 30, 1945.[37]

Postwar land tenure arrangements, made after the expiry of the lease, will be described in Section 5.4, Refinery Shutdown & Sale.

5.3.2. The Refinery Spur

In January 1944, U.S. army representatives requested that land be made available to the U.S. for "a strip of land 99 feet in width to be used as a right-of-way for a railroad approach spur to the refinery," land belonging to the British Yukon Railway Company.[38] In April 1943, the WP&YR had already given permission for the spur to be built and furnished the rails and angle iron from its abandoned line to the Pueblo mine. Installation had been completed in the summer of 1943 with the spur being used to transport equipment to the site during refinery construction. The line left the main line of the railway near the north end of Lot 9 and meandered through Lot "B", Lot 9, northeast corner of Lot 10 into Lot 11.

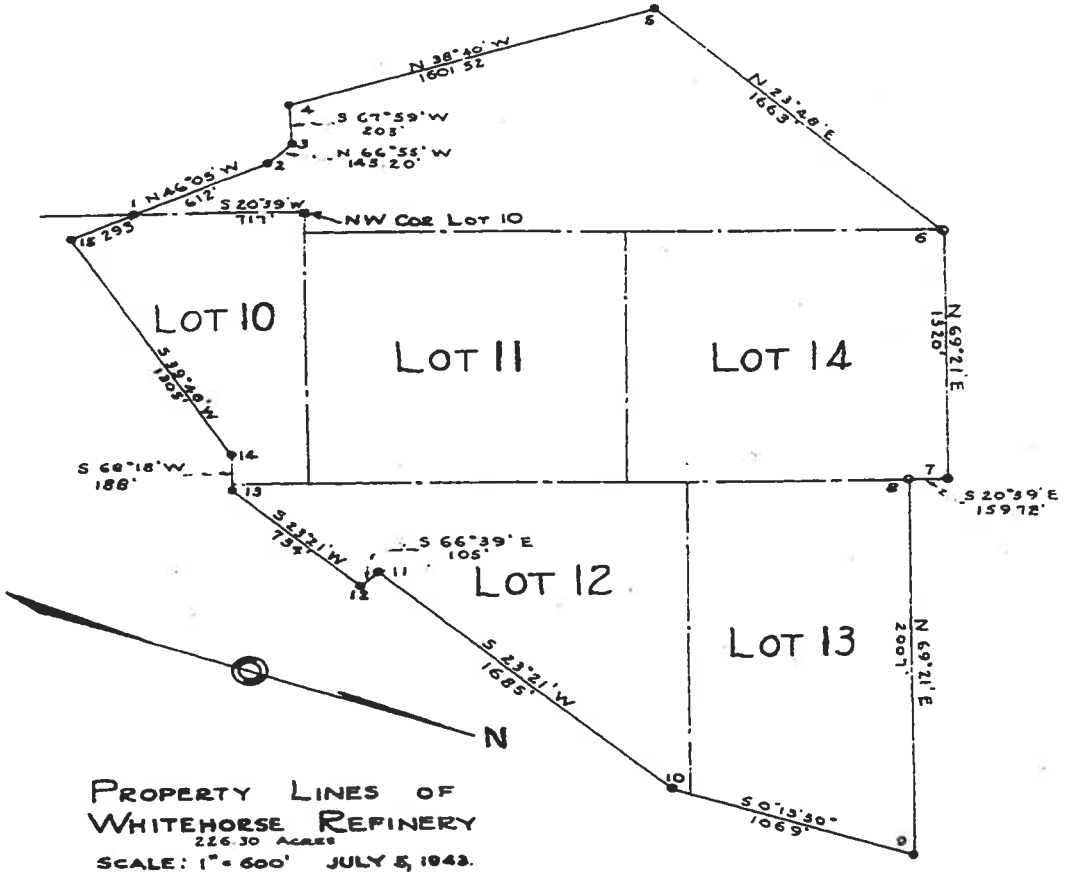
This parcel ended up being covered by Lease 11, Permission to Occupy No. 96, with the right-of-way granted being only 14 feet wide. According to White Pass records, the lease was granted July 1, 1944.[39]

5.3.3 Pipeline between the Refinery Area and the Upper Tank Farm

When the agreement for Canol No. 2 was finalized in August 1942, the original intent was that the pipeline between Skagway and Whitehorse would be used to deliver gasoline to Whitehorse that had been shipped to Skagway by barge. After the refinery began operation, traffic on the line began flowing the other way with refinery products being shipped to Skagway. This pipeline corridor was used both for delivering crude to the refinery and carrying refined products from the refinery to the upper tank farm.

During the postwar period, two pipelines ran between the upper tank farm near the airport and the refinery, a four-inch and a three-inch line. It has not yet been confirmed whether there were two lines operating during the war as well. The property occupied by the right-of-way for this pipeline corridor was never specifically identified in any of the land tenure correspondence and agreements during the war.

The postwar use and easements for this pipeline will be discussed in Section 6.4.



RG 91, Series 8, vol. 3A, File 1, TS 8 GOV 2073 Correspondence re: land use by U.S. Armed Forces and various small plans of Whitehorse area. 1943-44.

Figure 7. Plan of Refinery property lines.

5.4 Refinery Shutdown & Sale

On 5 March 1945, the following announcement was made to a Special Committee of the United States Senate Investigating the National Defense Program, confirming long-held intentions by the U.S. to cut their losses on the Canol Project:

> *The Joint Chiefs of Staff have directed that the crude oil facilities of Canol project be discontinued by the 30th of June, 1945. The War Department proposes to initiate discontinuance immediately in order to release skilled technicians for refineries in the United States and Canada where manpower shortages exist. The United States Government proposes a joint press release by the United States and Canadian officials as soon as can be agreed upon.* [40]

On March 9th, 1945, Standard Oil notified its employees that the refinery would be closing down operations mentioning that: "our plans require that we prepare the shut-down facilities in a safe, clean, orderly condition. . ." The aviation fuel facilities had stopped operating and were being closed down permanently. The remainder was to be closed once the remaining crude stocks were processed.[41] Although the actual date of cessation of operations was not found, one report mentioned that remaining crude stocks were being processed into motor gasoline and diesel oil and estimated all refining would stop on April 1st.[42]

In June 1945, a report from the Special Commission on Wartime Projects in Northwest Canada reported that the main Canol pipeline and refinery had been mothballed: "The Whitehorse Refinery, the Norman Wells pipe line and unused pumping stations have been cleaned and are in a stand-by condition. Tanks have been left safe."[43]

Over 1945-46, government correspondence expresses two concerns regarding the refinery site: one being the issue of the disposition of the refinery, and the second being which facilities might be required for Canadian Armed forces who were taking over postwar maintenance of the Canadian section of the Alaska Highway. One of the properties eventually taken over by DND was the maintenance complex on the refinery site. This will be discussed in more detail in Section 6.2, the RCEME/YTG Grader Station Site.

5.4.1 Refinery Lease No. 25A & Railway Spur Line Lease No. 11A

In February 1946, R.A. Gibson of the Department of Mines and Resources wrote C. J. Rogers, the President of WP&YR, to discuss postwar leases of White Pass property. He mentioned that his department was waiting for the various departments to indicate which "buildings and sites would be required for government activities so that we might negotiate with you about the rental of same when the present leases terminate." The government also decided that as the refinery rail spur was also on refinery property, this lease should be renewed as well. Rogers in turn, expressed concern that definite time limits be put on any new leases "so as to allow for adjustments in line with the development here." He suggested a lease price of $5.00 per acre per annum and also expressed concern that the rail spurs not be removed without permission of the lessee.[44]

In April, Gibson expressed concern to the Deputy Minister of the Department of National Defence about problems with negotiating a new lease for the portion of the refinery site on White Pass land:

> "Defence Projects Lease No. 25 – . . . So far the disposition of the Oil Refinery

has not been announced by the Dominion Government and until this matter of policy has been decided we do not know under what authority Lease No. 25 can be renegotiated or for what period the new lease will be expected to cover. It looks as though the execution of a new lease will have to be deferred until the policy governing the future or disposition of the Oil Refinery has been announced."[45]

Lease 25A for Part of Lot 10 and all of Lots 11 and 14, Whitehorse, was completed and sent to White Pass for signature on July 31, 1946. The lease was for a term of five years beginning on February 15, 1946; and the rental fee was $495 per year based on an assessment of 99 acres at $5.00 per acre. Although a copy of this lease was not on file, the legal description of lands was the same as the previous lease.[46] As the Department of Justice had determined that the end of the war took place with the capitulation of Japan with the date officially set at August 15, 1945. The wartime leases, scheduled to end six months after cessation of hostilities, therefore terminated on February 15th, 1946.[47]

Lease 11A, for the right of way of the refinery spur, was not sent out for signing until September 17, 1946.

Correspondence during the sale of the refinery indicates that the refinery lease was cancelled in February 1947.[48] Lease 11A was terminated in April 1948 along with four other postwar leases on White Pass property, the Canadian government having decided that these lands "were no longer required in the operation of the Northwest Highway System."[49]

The subsequent disposition and use of these lands will be discussed in Section 6.0.

5.4.2 Refinery Disposal Negotiations & Sale

In 1945, there was much uncertainty regarding the future of the refinery. The Canadian government worried that the United States in wishing to sell the layout in place, "might attempt to include with them the right of occupation of the land or the right to operate the layout." They stressed that any purchaser had no special rights but must operate "under such regulations as Canada finds it desirable to impose."[50] During the same period, the president of White Pass expressed his company's interests, "that the major part of the land on which the refinery stands belongs to us. The Railway Spur to the refinery is on our land. . ."[51] Government correspondence during this period includes much discussion regarding disposition of American defence facilities and the drawbacks of following procedures of earlier treaties.

In late October 1946, C. K. LeCapelain expressed his own concerns regarding Canadian custody of the refinery facilities in the event a sale could not be made:

> *"Do they [refinery facilities and equipment] stay on the site with the Dominion Government being obligated to pay rental for an indefinite period while the facilities gradually disintegrate, or will the facilities be dismantled and junked and the site have to be cleared and tidied up before being returned to the owner, in which case who pays for the tidying-up? What will be done with the junked equipment when tidying up? And who would received payment for any moneys obtained from the possible disposal of this equipment as junk?"* [52]

A number of these issues were addressed in the exchange of diplomatic notes on 7 November and 30 December 1946 and provided specific policies and procedures regarding the sale or abandonment of Canol facilities and the responsibilities of the respective governments. [See Section 5.1 – The Treaties.]

In February 1944, Acting Yukon Controller, J. E. Gibben made the following suggestions for the agreement on disposal of Canol installations: "in disposing of any of the facilities there shall be a proviso that the purchaser leave the area in a clean and tidy condition, and that all excavations likely to be a danger to the public be filled in." [53]

Early in 1947, the State Department of the United States sent out advertisements inviting bids for the Canol crude oil pipeline and refinery together with equipment and certain supplies. Parcel A included the refinery in Whitehorse and all surplus property in the vicinity as listed in nine lots:

- Lot 1 all units of the refinery, including utilities, valves, fittings, process piping, Hortonsphere and process tankage.
- Lot 2 the powerhouse equipment including main transformer station
- Lot 3 all finished product and crude storage tankage within the refinery area
- Lot 4 all telephone repeater station equipment stored within the refinery area
- Lot 5 all industrial and shop buildings
- Lot 6 all warehouses and personal housing
- Lot 7 machine shop and garage equipment including tools
- Lot 8 gasoline dispensing unit, including tanks
- Lot 9 all fencing enclosing the refinery. [54]

None of the resulting bids were accepted and the installation was sold by negotiation to the Imperial Oil Company. In July, a Mr. Jones, Field Commissioner for Canada and Northern Atlantic area, office of the Foreign Liquidation Commissioner, was involved in discussions with representatives of the Imperial Oil Company regarding the purchase of the refinery. After the meeting, it was noted that the following government departments should be notified if sales were made: the Foreign Exchange Control Board, the Minister of National Revenue, and the Department of Mines and Resources.

On February 25th 1947, the Department of Mines and Resources gave 30 days notice of the cancellation of Lease 25A, the 99 acres of land owned by the British Yukon Railway Company. Regarding subsequent land tenure, the acting director of the Lands, Parks and Forest Branch, Department of Mines and Resources, wrote: "It would, therefore, seem that the purchaser of the Oil Refinery, which would appear to be the Imperial Oil Limited, would need to arrange with the British Yukon Railway Company and the Department of Mines and Resources respectively for the use of the refinery site during the period that it is dismantling the buildings on the site and for the proper tidying and cleaning up of the land."[55] The last phrase indicates that the Department of Mines and Resources was responsible for monitoring site clean-up during refinery removal.

The letter goes on to state: "any organization which purchased buildings from Imperial Oil Limited with the intention of leaving them on the site for continued use would need to negotiate with the owner, whether British Yukon Railway Company, or the Department of Mines and Resources, for the right to use the land."[56] This would affect the site occupied by DND.
On 7 September 1947, The United States government sold the refinery to Imperial Oil for $1,000,000.

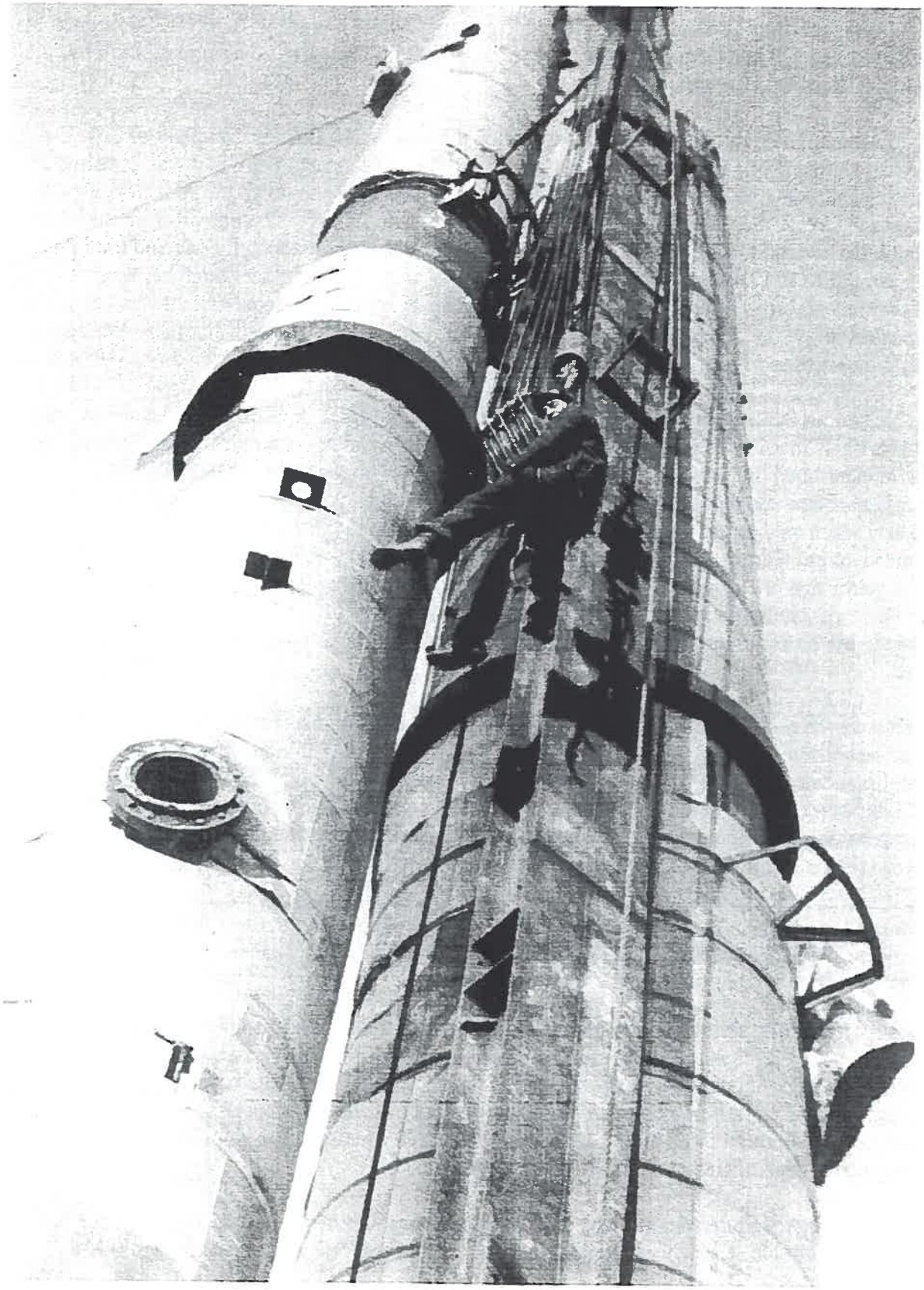


Figure 8. Dismantling a column of the Caustic Treating Unit. YA. Shulist Coll., 84/33. PHO 266. 95.

The "Vendors Shipping Document" referred to contract number W-ANL-(CAN-1)-39; signed by Charles B. Jones, Field Commissioner, foreign liquidations [Canadian government] and D.S. Simmons, Imperial Oil representative.[57]

In late August 1947, the *Whitehorse Star* reported that the W. W. Barnes Company of Los Angeles, California had been contracted to dismantle the oil refinery, work that was expected to employ about 100 men. The refinery components were then shipped down the Alaska Highway to Dawson Creek, then by railway to Edmonton where it would process crude oil from the recently discovered Leduc oilfields.[58] The dismantling process was a lengthy one and took place from the fall of 1947 until about late April 1948. On March 1st, the forestry engineer reported that the dismantling was approximately 90% complete. Sixty-seven people were then working on the project; 60 were Canadians and seven Americans.[59] His report suggests that there was some federal monitoring of the dismantling activity.

Tim Nelson was an engineer, formerly with Corps of Engineers, U.S. Army in Whitehorse, from 1943 to 1951. In a 1984 telephone interview with Rob McCandless of Environment Canada, Nelson mentioned the following about fuel disposal. He stated that "contractors who removed the refinery removed the light ends also." He also recalled that 2500 barrels of "slop fuel," full o volatiles, were sold to the Canadian government, then resold to the contractor by the Crown Assets Disposal Corporation. Nelson wouldn't allow the contractor to use the stuff on roads etc. as the volatiles were too high and a fire hazard. He didn't know what happened to it. As for the tank "bottoms" left behind, he didn't know how they were disposed of, also the same for oils collected by the skimmer, which swept oil off water headed for discharge back in the Yukon River.[60]

No records were found concerning either the procedures used in dismantling the refinery, or of Canadian efforts to ensure that this was done in a safe and responsible manner, according to the federal mandate to ensure "proper tidying and cleaning up of the land." Educated guesses can be made, however, based on the comments of people who were around at the time, relevant correspondence, and the much more casual attitude toward the use and disposal of oil.

> "Instead of pouring oil on troubled waters it is being sprayed upon the streets in Whitehorse in order to abate the dust nuisance." — *Whitehorse Star*, 12 May 1944

Lloyd Ryder recalls that it was common practice for school children to collect used oil from White Pass and other garages to pour on ponds and swampy areas for mosquito control. Mr. Ryder, who ran a fuel delivery business for many years, has no personal knowledge about practices such as tanks being dumped on the ground but allowed that it is possible this happened: "it was sort of a natural thing to do. As long as you weren't letting it run right into the river or into the water stream, why it was just – well, let her go."[61]

The following procedure suggested by J. E. Gibben, Controller of the Yukon Territory, for salvage of Canol No. 1 pipeline is a good example of contemporary conservation and waste disposal practice:

> *...in the event that no attempt is made to salvage oil it is suggested that the dismantling company be required to drain the pipe at low points, where an*

accumulation of oil has gathered, into circular dyked pits. Such pits could be made quite easily with a bulldozer, and should be sufficient distance from any river, stream or lake to prevent pollution from seepage. The location, construction, depth, etc., of the drainage pits should probably be subject to the approval of and inspected by the Forestry Officer. [62]

Gibben's suggestion was endorsed by J. S. Stewart, the Departmental Petroleum Geologist for the Geological Survey of Canada, Department of Mines and Resources. Stewart added a further suggestion:

When you realize that it took about 50,000 barrels of oil to fill the pipe line from Canol to Whitehorse, it is reasonable to expect that considerable quantities remain undrained at certain places. Oil that escapes from wells or pipe lines is usually drained into pits dug for the purpose; it is then destroyed by fire in order to reduce any fire hazard through leakage or accumulation of inflammable gas. . . I would simply add to the recommendation of Mr. Gibben that all the crude oil drained from the pipe line as well as petroleum stored along the line, be removed, or destroyed by fire in pits dug for the purpose.[63]

R. A. Gibson, Director of the Department of Mines and Resources, endorsed both suggestions and wrote a colleague at the Department of External Affairs so that these comments might be passed on to the American Embassy. He pointed out the possibility that should the Canol pipeline be dismantled . . . "the residue of oil in the pipeline might be allowed to pour out unchecked, thus constituting a fire hazard and threat to timber and wildlife resources."

He went on to state:

. . . If it is done in the wintertime the oil could possibly be allowed to spread on the snow and burned without damage; . . . If the work is done in the summertime it has been suggested that pits should be bulldozed to collect the residue of oil and in which it could be safely burned.[64]

Interestingly, two key people representing federal interests at the refinery site, R.A. Gibson and C.K. LeCapelain of the Department of Mines and Resources, were also responsible for National Parks and, as such, were as familiar as anyone with contemporary conservation policies.[65]

[See Section 6.1.1 for discussion of the possible origins of the Marwell tar pit.]

5.5 Refinery Operations

(Note: This section was prepared by Lesley Gomm of Gartner Lee Limited.)

The major products produced at the Whitehorse Refinery were:

- motor gasoline,
- diesel and,
- 100 octane aviation gasoline.

Fuel oil and gas (ie. propane) were also produced for use in the refinery operation.
The refinery started steam generation in the power plant on February 26, 1944.[66] The processing of crude began on April 23, 1944. The cracking unit and reformer began operations on June 14. The gas concentration unit was brought on line on August 15 and the initial product from the alkylation unit was produced on October 17.

The delivery of crude to the refinery was stopped on March 13, 1945 and the power plant shut down on April 24, 1945. In total the refinery produced 866,670 barrels of products which was 88 percent of the total crude supplied to the refinery.

The layout of the refinery is shown in the 1946 Site Map. A probable schematic flow diagram is shown on Figure 9. All the major refinery units are labelled and the following is a summary of each.[67]

1. **Crude Distillation Unit** – Crude oil was heated to 800°F in crude oil furnace and then passed through columns for fractionation of desired products.[68] These products were: stabilized straight run aviation gasoline stock; naptha for reformer charging stock; and heavy reduced crude for cracker charging stock. The distillation unit consisted of the following principal units:

- 20 plate Atmospheric Fractionating Column
- 5 plate Side Stream Stripper
- 28 plate Debutanizer Column
- 20 plate Naptha Rerun Column
- 15 plate Vacuum Fractionating Column

2. **Dubbs Thermal Cracking and Reforming Unit** – Residual from crude distillation unit was further fractionated at high pressure and temperature into lighter end which included: alkylate charging stock; motor gasoline; and cracked fuel. The cracking and reforming unit consisted of the following principal units:

- Reformer Furnace
- Light Oil Recirculating Furnace
- Heavy Oil Furnace
- Reaction Tower
- Flash Tower
- 26 plate Fractionating Column
- Reflux Accumulator Vessel
- 16 tray Absorber Column
- Distillate Receiver
- 30 tray Depentanizer Column

- Gas Receiver
- Residuum Stripper

3. **Gas Concentration Unit** – This unit was used for the recovery of alkylation plant charging stock. The gas concentration unit consisted of the following principal units:
- 30 plate Absorber Column
- 12 plate Primary Stripper Column
- 30 plate Secondary Stripper Column
- 30 plate Depropanizer Column

4. **Isomerization Plant** – The plant produced isobutane for feed to the alkylation unit. The isomerization plant consisted of the following primary units:
- Charge Lime Drier Vessel
- Charge Sand Filter Vessel
- Charge Heater
- Reactor Vessel
- 2 Aluminum Chloride Saturator Vessels
- Tar Washer Vessel
- 2 Bauxite Guard Chambers
- Hydrogen Chloride Column Separator and Charge Tank
- 20 plate Hydrogen Chloride Fractionating Column
- Caustic Scrubber and Settling Tank
- 15 plate Dehydration Column

5. **Hydrofluoric Acid Alkylation Unit** – This unit was used for the production of high octane aviation gasoline blend stock. The alkylation unit consisted of the following principal components:
- 2 Contactors
- 7 Plate Acid Regenerating Column
- 40 Plate Depropanizer Column
- 60 Plate Deisobutanizer Fractionating Column
- 28 Plate Debutanizer Column
- 20 Plate Alkylate Fractionating Column

6. **Caustic Treating Unit** – This unit was used for the treatment of motor gasolines and aklylation plant charging stock. The caustic treating unit consisted of the following components:
- Propane Treating Section
- Straight Run Gasoline Treating Section
- Thermal Cracked Gasoline Treating Section
- Gas Concentration Unit Liquid Treating Section
- Caustic Regenerating Section

7. **Ethyl Blending Unit** – The ethyl blending unit was used for the blending of tetraethyl lead with gasoline. This plant had the following components:
- Weigh Tank for Aviation Fluid (15,000 gallon capacity)

- Weigh Tank for Motor Fluid (4,250 gallon capacity)
- Equipment for the unloading of ethyl fluid from drums and for the ethylization of motor and aviation gasoline in finished product tanks.

8. **Steam Power Plant** – The steam plant provided utilities for the refinery facilities. The plant consisted of:
- 4 1,050 Horse Power Boilers
- 2 1,500 KW and 1 750 KW Turbo Generators
- Air Compressors

9. **Oil-Water Separator** – An oil-water separator was installed for the treatment of all process water and surface water runoff prior to discharge to the Yukon River. This unit consisted of:
- Oil-Water Separator (standard API design)
- Sump for the collection of surface water prior to treatment in the separator.[69]

The majority of the refining based activity was carried out on what is now the Highways Maintenance Yard (see the 1946 site map). The refinery units that were located on the North of 60 site are the oil-water separator and sump, the S tanks and two large storage tanks (the size of these is unknown, although they may have been 2,000 to 10,000 barrel tanks).

The oil-water separator was used for the treatment of effluent from the clean water sewer consisting primarily of cooling water from refinery units and the oily water sewer which consisted of wash down from building floors, drains, equipment and spills. The oil was skimmed off the top of the water in the separator and removed to the slop tank(s). The location of the slop tank(s) is unknown and the ultimate disposal of the slops is not known, but these may have been incorporated into the Marwell tar pit site. The water was then discharged into the Yukon River. The sump, located adjacent to the separator, was used to collect surface runoff from the refinery area which was then pumped out through the oil-water separator prior to discharge.

Potential hydrocarbon contaminants of concern associated with the refinery include crude oil, fuel oil/diesel, motor oil and gasoline. Contamination could be caused by spills and leakage from bulk storage tanks, refinery units (units 1-7), and all distribution piping. The large 55,000 and 80,000 barrel tanks most likely contained crude oil. The boilers at the powerhouse probably burned fuel oil refined on site.

There were several environmental issues raised during the construction of the refinery, all dealing with the discharge of refinery trade wastes (process water) to the Yukon River. It was estimated that approximately 576,000 gallons per day of this waste stream would be produced with both free and emulsified oil.[70] As well, there was a concern about the quantity of hydrofluoric acid and salts that may be discharged, both of which could have been toxic to fish.[71] The disposal of sewage was also flagged as an issue. These concerns were forwarded to the RCMP who followed up with a site visit.[72] It was felt that all the appropriate measures were being taken to ensure minimal impacts on the receiving water. All the hydrofluoric acid was to be neutralized with lime prior to discharge and the use of an oil-water separator would ensure the removal of oil prior to discharge. Sanitary facilities were being built on site to treat the sewage using septic tanks.[73]

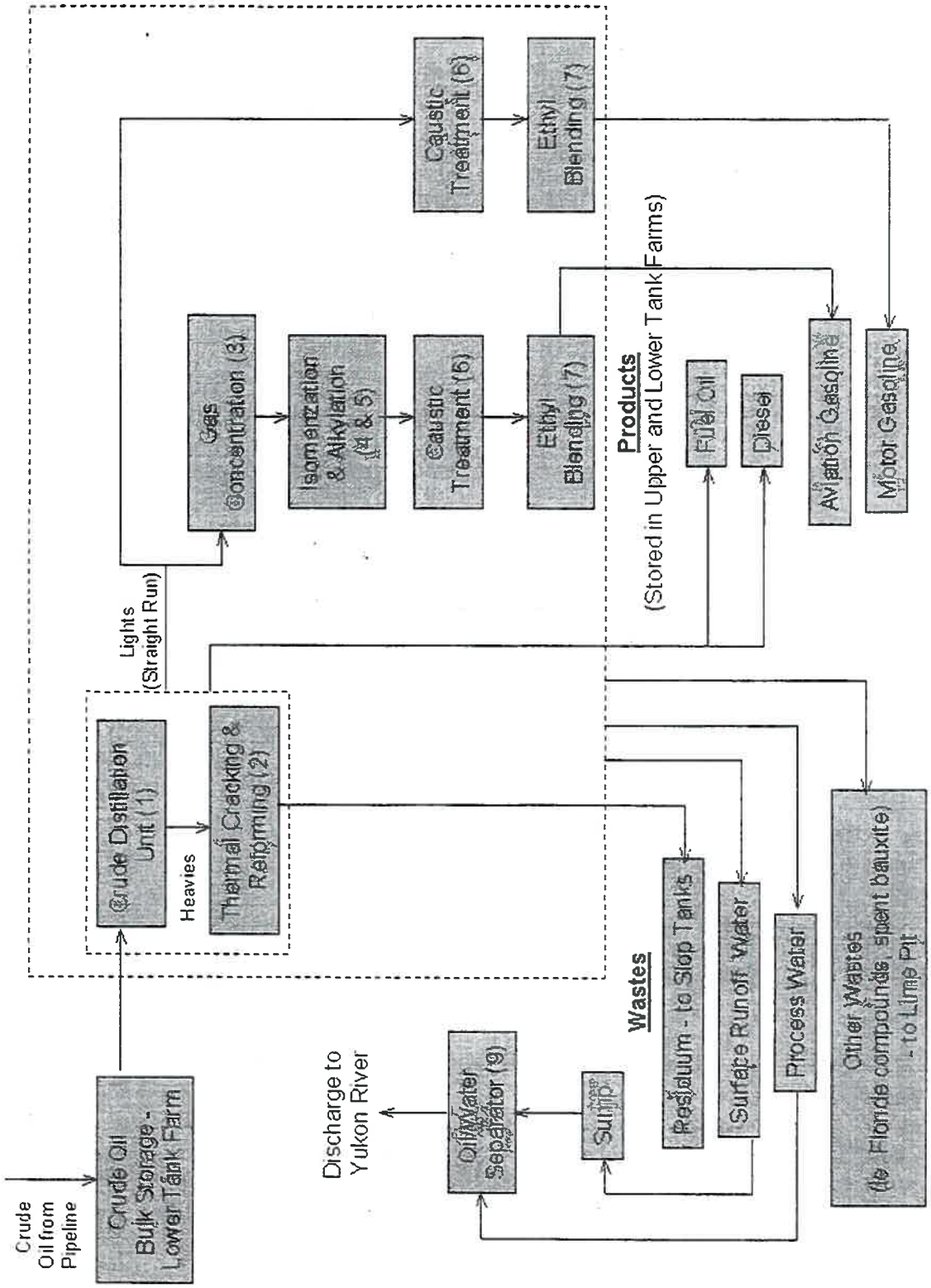


Figure 9. Probable Refinery Operation. Prepared by Gartner Lee Limited

Given that the normal operation of the oil-water separator was for the treatment of process water and runoff only, minimal hydrocarbon contamination would be expected from this unit. Hydrocarbon products collected from the oil-water separator were taken to the slop tanks. Refinery buildings could have been heated either by waste heat from the power plant or with local oil furnaces. If the buildings used fuel oil for heating, then a small fuel oil storage tank would be associated with each refinery structure.

Contemporary contamination from hydrofluoric acid is unlikely since any residual acid would have reacted since the refinery was dismantled. Other wastes such as spent bauxite and fluoric compounds were neutralized with lime and disposed of in the lime pit. The location of this waste pit is unknown, but was reported as 1500 feet back from the river. There are several man-made clearings on the 1946 map that could be candidate sites for this pit.

5.5.1 1952 Post Refinery Site Interpretation

In the 1952 aerial photograph, the refinery site can be seen a few years after the dismantling of the refinery. Most of the refinery buildings and bulk storage tanks have been dismantled. The only storage tanks remaining from the refinery appear to be the six spherical 'S' tanks. The footprint and containment berm of the tanks are still clearly visible. The main refinery buildings are all dismantled, but miscellaneous smaller buildings remain including:

- the lab (16), office (17) and fire (18) buildings;
- the 4 warehouses (combined into one building) (19);
- the shop & garage building (20);
- an 'H' shaped building of unknown use along Quartz Road; and
- the rock crusher building (12).

The concrete foundations of the following structures remain in the 1952 aerial photograph:

- Crude distillation unit (possible) (1)
- Thermal cracking/reformation unit (2)
- Gas concentration unit (3)
- Caustic treating unit (6)
- Powerhouse (8)
- Oil-water separator (9)
- Water intake building (11)
- Blow down building (13)
- Small pump houses (15)

The sump adjacent to the oil-water separator appears to be intact.

Significant new structures visible in the 1963 aerial photograph include:

- the riverboat fuelling dock;
- a dike or road exists around the future site of the barrel reconditioning pond;
- the highways maintenance building; and
- miscellaneous warehouses south-west of Quartz Road.
- The Marwell oil pond is clearly visible, located within one of the 80,000 barrel bulk storage tank's containment berm.

5.5.2 1963 Site Interpretation

Changes in the study area can be seen in the 1963 Site Map. The footprint on two of the very large tanks (55,000 and 80,000 barrel) remain visible, but the rest of the bulk storage area seems to have been re-graded. The small refinery support buildings visible in 1952 are still present. Miscellaneous smaller refinery buildings remain in the 1963 aerial photo.

The sump adjacent to the oil-water separator appears to have been partially filled in.

Significant new structures visible in the 1963 aerial photograph include:

- the two 'Y' tanks;
- the barrel reconditioning pond;
- possibly a small above-ground storage tank (AST); and
- miscellaneous warehouses south-west of Quartz Road and west of industrial road.
- 'F' tanks 1 through 8 appear to be under construction.
- The Marwell tar pit now appears to be covered with soil pushed from up slope of the pit.

Potential sources of hydrocarbon contamination from this time include leakage and spills from the bulk storage tanks ('S' and 'Y' tanks) and the associated pipelines. Spill could also be associated with the riverboat fuelling operations. Some contamination could result if waste and petroleum product drums were disposed of in the former refinery sump area. Dark material, probably petroleum tars, can be seen leaking from the Marwell tar pit site.

A comparison of the refinery layout with the groundwater contamination levels measured by Jacques Whitford Environmental Limited (1998) indicates that the source of the contamination is from the area of the oil-water separator and the 'Y' tanks. Given that the normal operation of this oil-water separator was for the treatment process water and runoff only, minimal hydrocarbon contamination would be expected from this source. The 'Y' tanks are a more likely source of this hydrocarbon contamination. These tanks were used for gasoline storage since their construction (Tom Martin, pers. comm., March 1999). The possible above-ground storage tank noted adjacent to the Yukon River on the 1963 site map appears to coincide with an area of elevated hydrocarbon concentrations in soil (near MW9) delineated by Jacques Whitford Environmental Limited in their 1998 report.

5.5.3 1994 Site Interpretation

A current overview of the study area can be seen in the 1994 Site Map. The only refinery related structures stand that appear to be the 'S' tanks, the warehouses (19) and the lab building (16). There has been significant development since the 1963 aerial photograph, include expansion to the north of the original refinery site. This northward development includes the current Petro-Canada bulk storage plant, miscellaneous service industries, and residential development. In addition to the F1-F8 tanks seen in the 1963 photo, there are two new tanks (F9 - F10) visible on the White Pass site. The railway spurs to the White Pass site have also been built since the 1963 photo. The refinery sump has been completely filled in and is no longer is visible.

6.0 POSTWAR / POST REFINERY PERIOD – PROPERTIES & TRANSACTIONS

Soon after the refinery was removed, White Pass moved onto the site still occupied by many of the refinery tanks. This became the White Pass bulk plant. The Department of National Defence took over the maintenance of the Alaska Highway. They expressed interest in using the refinery maintenance shops "on a temporary basis." The military ended up staying in the area until the early 1960s when the area was subsequently taken over by Yukon government operations. In the late 1940s and early 1950s, a number of businesses moved out to the Marwell area. Many of these leased and eventually bought properties. One company in the area with barracks, a cookhouse and shops was the large construction firm, Marwell Construction Company after which the area was eventually named. *

Over this period there were several land transactions to reflect the changing land use of the area. This section will look at these transactions and the various activities carried on during this period.

6.1 Lot 263, CLSR Plan 40189, LTO 20322.

This 53 acre triangular lot immediately adjoining the west side of Lots 11 and 14 was surveyed in October 1944 by H. C. Bingham, Dominion Topographical Surveyor, by order of the Department of Mines and Resources, the federal agency responsible for handling land transactions in connection with wartime defence projects in northern Canada. This site had been identified by Gordon Turnbull and Sverdup & Parcel, the architectural engineering firm in charge of the refinery design, as part of the land required to house the refinery. A 1946 air photo shows that the site was occupied by three large tanks surrounded by earthen dikes and about four smaller tanks.

This property was repeatedly identified as crown land in government correspondence during the 1950s and 1960s although there was some disagreement about whether DND or the Department of Mines and Resources was responsible for the site. [There are more details regarding this correspondence in Section 7.0 on the tar pit cleanup.] Since the war, this property has been repeatedly subdivided into lots and roads as part of the Marwell industrial subdivision. Lot 263 now exists only as four remainders of the original lot.

The largest of these remainders – noted as Lot 263 (REM) – is the site of the infamous Marwell tar pit located within the berm of one of the crude oil storage tanks. Apparently this was created during the dismantling of the refinery and, in subsequent years, became a used oil dump by the Canadian army and various local businesses. On April 3, 1958, a man became stuck in the pit and subsequently died of exposure. Over the next few years, there was much correspondence alternately discussing measures that could be taken to deal with the pit or haggling over which government or government department should take responsibility for this work. See the following section for more details of this.

In 1970, this land was transferred to the Commissioner of Yukon as part of a block land transfer by Privy Council order (PC 1970-1448). In the 1980s, there were various federal-territorial-municipal initiatives to study the nature of the contaminants and look at options for clean-up but these stalled when it came to deciding who was going to foot the bill.

In the most recent correspondence with the federal government regarding a future clean-up of the site, Jane Stewart, Minister of Indian Affairs and Northern Development, disavowed any federal fiscal responsibility as the land "is located on territorial land within the boundaries of the City of Whitehorse and does not fall under the jurisdiction of . . .(DIAND)." [74]

6.1.1 The Marwell Tar Pit, Lot 263 (REM)

There are a number of versions of how the Marwell tar pit was created and filled, most from former or longtime Whitehorse residents. Below is a chronological summary of these accounts and the sources:

1946

One Whitehorse resident states that the tar pit was already established in 1946 when he returned to Whitehorse from service overseas. He surmised that this was a waste area for the refinery. "There could have been a lot of oil when they first started the pipeline that got contaminated with sand and dirt. They probably, they had to get rid of it so they put it in that pit. . . Any kind of waste would be in there, you know, a byproduct that they couldn't refine, why it would probably go in that tar pit. . . That would be the waste area."
[Since the pit is located within the berm of a former tank, it seems unlikely the pit would have existed before the refinery was dismantled.]
He also mentioned that the pit was much larger then. "At that time, it was still quite liquid. . . If the moonlight was out, you could see and it looked like water. And there was a lot of birds that landed in there and then of course they couldn't get out. They perished there. You couldn't get out there to rescue them either." [75]
- one man interviewed in 1984 thought that the pit was full of crude oil for the refinery. He stated that there was a shortage of metal so they dug holding pits for the crude and he thought the tar pit was the remains of one of these pits.[76] We found no corroboration for this story.

1947

In May 1958, Robert Dunlop was a witness at the Coroner's Inquest into the 1958 tar pit fatality. He stated that the tar pit was created during the dismantling of the refinery. Below is an excerpt from the RCMP Coroner's Inquest Report, 13 May 1958.
"5. Mr. Robert DUNLOP was the next witness, and was called to testify as to the origin of the oil pit. DUNLOP advised that the American Army set up an oil refinery in what is now known as the Refinery Area, in 1943. Included in this project were ten 55,000-barrel oil storage tanks. Each tank was surrounded by a dike of sufficient size to hold the contents of the tank, in case the tank ever burst.
"In 1948 [sic] the American Army sold the Refinery to the Imperial Oil Co., who contracted with the Barnes Construction Co. to dismantle the refinery, and ship it to Edmonton. On[e] of the 55,000 barrel storage tanks was used to store the "tank bottoms", a sludge which settles to the bottom of the oil tanks, and which has no commercial use, at least not in Whitehorse. "When this last tank containing the sludge was dismantled, its contents was pumped into on[e] of the tank dikes, thus forming the pit . . ."[77]
- A former refinery worker, interviewed in 1984, stated that the pit was left from "an old storage tank." He also stated that there was a sump on the White Pass petroleum depot and "a large cesspool with chemical wastes and sewage where the Indian village is now."[78]
- In 1960 the territorial engineer, G. B. Starr, conducted his own investigations of the tar pit. He stated that the original amount of oil placed in the pit was 900,000 gallons. He suggests that

possibly some lubricating oil remained as well as asphaltic type oil in what was originally called tank bottoms or residue.[79]

1954
A piece of historical government correspondence suggests that the tar pit was certainly used, if not established, by the Canadian armed forces. In 1954, C. K. LeCapelain, the Chief of the Lands Division, Dept. of Mines and Resources, wrote the following in connection with a proposed subdivision of Lot 263.
"I also noticed a big earthen oil reservoir near John McIsaac's land which apparently is used by the Royal Canadian Air Force for storing waste cylinder oil. Neither Mr. Emery nor I had any previous knowledge of this oil storage reservoir. This, of course, reduces the acreage of land in the vicinity available for other people."[80]

1950s
Probably 200,000 gallons [of tar pit oil] were used by DND (NWHS) who used a Cleaver Brooke Steamer to heat the oil in pit so it could be pumped into distributor spray trucks [for dust control on roads]. See more about this in the next entry.[81]

1950s/early 1960s
"One long time resident of Whitehorse, interviewed by Piteau Engineering, worked for several years near the pit. He could recall regular visits to the pit by people and businesses to dump waste oil and other material during the 1950s and early 1960s. Air photo interpretation also suggests that in the years after the war, the pit at Lot 263 remainder was actively used as a dump site for waste oils."

During this same period, it was mentioned that the Canadian army used the lighter oils, comprising the upper layer of the pit, for dust control on roads.[82]

1960
According to witnesses interviewed by Territorial Engineer G.B. Starr, less than half of the original 900,000 gallons originally placed in the reservoir remained at this time.[83]

In summation, the most credible theory for the formation of the tar pit was that propounded by Robert Dunlop in 1958. Given that the tar pit occupies a former tank berm, it could not have been created without removing the tank and the explanation that this was a drainage site for refinery wastes is a likely one. It is also believable that since this was an established dump site, both the Canadian military personnel and local businesses felt no hesitation in adding their own hydrocarbon wastes to the site. It would be interesting to learn how the territorial engineer determined that the pit originally contained 900,000 gallons of oil product but, in 1960, he would have had access to people with fresher memories of the site and its formation.

Issues regarding attempts to clean up the tar pit will be dealt with in Section 7.0.

6.2 RCEME / YTG Grader Station Site

(Note: Staff at the Department of Community and Transportation Services were unable to find relevant files pertaining to the history of this site within the time allowed for preparation of this report. Consequently, the following account is incomplete. Given the presence of contaminants on the site and the present lack of knowledge of the nature and source of this problem, further historic research should be done to clarify the situation. HD)

When R. A. Gibson, Director of the Dept. of Mines and Resources, was negotiating an extension of the refinery lease with White Pass in 1946, one of the considerations was the desire of the Canadian Army to "temporarily" use the workshop buildings in the Oil Refinery area – some of which were on BYRCo. land.[84] A list of facilities that DND wished to acquire included: "Building 42, warehouse, frame const., 66' x 160' with wing 20' by 50', fair condition. Remarks: To be used as RCEME workshop, spare parts, storage and office."[85]

When the refinery was sold, the Department Of National Defense purchased the shops, storage and warehouse buildings on the refinery site from Imperial Oil.[86] About 1948 or '49, this became the maintenance area for the RCEME (Royal Canadian Engineers Maintenance Establishment).[87]

Other remains of the refinery structures on the site included the concrete foundations of the refinery power house, part of the water intake structure and associated building, the remains of thermal and reforming unit, foundation remains of the gas concentration unit, and the foundations of the caustic treating unit.[88]

6.2.1 Land Use

This property was used by the army to maintain and service heavy equipment and vehicles used in maintaining the Alaska Highway in the Whitehorse area. The site was fenced and gates were installed at the points where the railway track entered and exited the property.

The Canadian Army remained in charge of highway maintenance until 1964 when they turned this duty over to the federal Department of Public Works. It is likely, but to date unconfirmed, that DPW then took over this area. At the time of writing this draft, it was not known just when this area was taken over by Yukon Government operations. One longtime resident suggested that this happened over time, with YTG moving in gradually. The property was formally transferred to YTG as part of the block transfer of federal land within the City of Whitehorse to the Commissioner (PC 1970-1448).[89]

There was an oil pipeline from the tank farm down the hill to the stem at the White Pass bulk plant. The pipeline right of way passed through the RCEME yards. For a number of years, there was a branch off this pipeline to the power plant in the army area. Lloyd Ryder described the purpose of this branch:

> *They just put a branch over to the power plant because it was a lot easier to let the oil run into their tanks than it was to haul it with a truck. They'd go over there and sometimes they'd take quite a bit of oil, so the guy operating it – he probably left the valve on and 'oh, oh she's starting to run over.' . .There had to be some spills in that area. At forty below, you're not going to be standing there watching to see how full the tank gets.*[90]

By 1950, the original refinery spur line had been extended to the bulk plant.[91] On 19 September 1960, WP&YR applied for an easement on Parcel A, Lot 12 of the DND property for "a spur line right of way, 240' feet long and 20' wide, lying to the west of the Refinery Line track . . . at the northeast portal of the RCEME in Group Lot 12, Group 804," to be used as a railway spur switching track. The right of way is shown on CLSR Plan #63040, surveyed in 1976 and 1977.

6.2.2 Land Tenure

For one year, part of this area (the BYRCo. land) was leased from White Pass under Lease 25A, the lease that replaced the wartime Lease No. 25. The lease was cancelled in February 1947 when American government sent out invitations to bid for the refinery facilities.

In 1949, the Canadian government began bargaining with White Pass for an exchange of lands within the former refinery area and elsewhere within Whitehorse to reflect changing land use. The DND workshops were largely on BYRCo. land, the White Pass bulk plant was on crown land, and public roads had been built in the refinery area on White Pass land. Negotiations were complicated by the fact the White Pass wished to protect the rights-of-way and easements for rail and pipe lines. It ended up taking more than 10 years to finalize this agreement.[92]

In 1950, H.B. Walcot, D.L.S., surveyed a number of properties requested by DND. These included Parcel A (REM), Lot 10; Parcel A (REM), Lot 11; Parcel A (REM), Lot 12; and a small parcel at the southerly end of Group 263, "all apparently for a lease or leases to the Department of National Defence." Other parcels are also mentioned in a 1952 letter from the Surveyor General discussing this survey, but as he was referring to an annotated map, it is difficult to know just which parcels were meant.[93]

The last mention of the site survey comes in the following letter dated January 1954 to the president of White Pass from C.K. LeCapelain, now Chief of the Lands Division:

> "The plan covering the survey of the lands which you have agreed to transfer to the Department of National Defence has now been completed and accepted by Mr. R. C. Beaumont on behalf of the railway company. Acceptance has also been given on behalf of the Commander, Northwest Highway System.
> "The deputy minister of National Defence has asked whether the Railway Company are prepared to install gates at the points for the railway line enters and leaves the property covered by the plan. This question appears to have been brought up first in 1949, by the Department of National Defence, and has, I imagine, been discussed with you by the Northwest Highway System Command."[94]

When the survey was recorded by the Surveyor General in 1954, it was given the CLSR Plan Number 42155.[95]

When the land transfer was finally approved by both parties in the spring of 1960, the crown accepted transfers of BYRCo. land having a total area of 50.75 acres. In turn, the crown agreed to authorize letters of patent granting White Pass lands having a total area of 45.06 acres and to authorize the grant of easements, for construction, operation and maintenance of an oil pipeline and a railway line across various properties in the Industrial Area.

The agreement included the following important provisions:
"Part I Lands to be transferred by the British Yukon Railway Company to Her Majesty the Queen in right of Canada:
(A) the whole of Parcel "A" in Lot 10, and the whole of Parcel "A" in Lot 11, in Group 5, in Yukon Territory, as said parcels are shown a plan of survey of record number 42155 in the Canada Lands Surveys Records at Ottawa, a copy of which is filed in the Land Titles Office for the Yukon Land Registration District at Whitehorse under No. 20717.
(C) The whole of the right of way for a road [later named Industrial Road] through Lots 11 and 14, in Group 5, in Yukon Territory, as said right-of-way is shown on a plan of survey of record number 42895 in the Canada Lands Surveys Records at Ottawa, a copy of which is filed in the Land Titles Office for the Yukon Land Registration District at Whitehorse under No. 21632."
In return, lands to be granted to the British Yukon Railway Company included part of Lot 16, the portion of Lot 12 occupied by the White Petroleum Division, and part of Lot 263 as shown on CLSR plan 42311, LTO number 20966 together with various easements for the railway and pipeline.[96]

These were among the properties transferred to the Commissioner during the federal block land transfer of 1970 (Order in Council P.C. 1970-1448).

6.3 White Pass Petroleum Depot

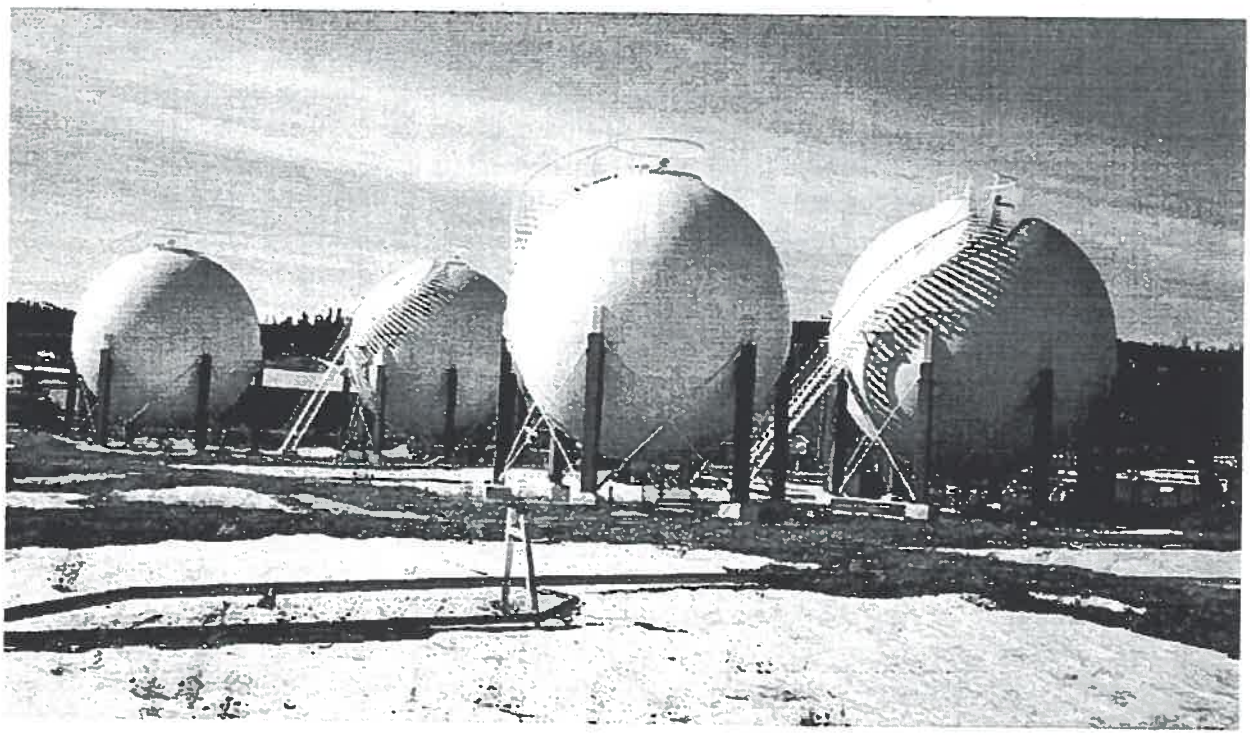


Figure 10. Spherical tanks at the petroleum depot. 31 March 1999. Midnight Arts photo

6.3.1. Land Use

White Pass moved onto the portion of the refinery area occupied by the distinctive spherical tanks soon after the refinery was dismantled and moved. No record was found of any transactions or agreements whereby White Pass purchased or otherwise acquired these tanks from Imperial Oil Limited although the WP&YR president mentions the company having bought

"the tank farm at the river and the Horton Spheres" [probably the spherical tanks] in a 1958 letter.[97]

Although most of the property in the Marwell area was held by the British Yukon Railway Company [White Pass], this particular parcel was on crown land. Meanwhile, to the south, federal government operations were mostly on White Pass land. This land tenure situation, first identified and addressed in the late 1940s, was not resolved until 1960.

As well as the tanks, the property contained a few other remnants from the refinery including the oil-water separator, the foundation of the building known as the "blow down," and the 'S' or spherical tanks. The sump or pit, which was used to collect run-off surface water to be treated in the separator, was gradually filled in over time.

On 24 August 1948, William D. Gordon, Assistant Superintendent of the British Yukon Navigation Co. – the River Division of White Pass, submitted an application to lease 1.38 acres of waterfront for "creating facility to store and load and unload cargo to vessels including petroleum products." According to the application, improvements on the property would consist of "oil pipeline, filling stem, platforms and mooring dolphins and warehouse to be built."[98] The property had been staked on August 21st. In November, Land Agent, F.H.R. Jackson inspected the site and recommended that the application be approved. His report mentioned that on the property there were three warehouses, oil storage tanks, and a railroad spur line.

In December 1949, the Chief of the Lands Division, Department of Mines and Resources, Ottawa wrote to the Whitehorse land agent stating that the department did not intend to grant any leases until the area had been surveyed. A survey was planned for the 1950 season. The letter also states: "The request for this lease forms part of arrangements for the transfer of lands in the oil refinery area of Whitehorse required by the Department of National Defence as a shop area."[99] White Pass seems to have occupied the waterfront area not long after making its application. The lease was not granted but seems to have been included with the lands granted White Pass in the land exchange between the BYRCo. and the crown in 1960. (Section 6.2.2.)

6.3.2 Petroleum Depot Operations

Initially, the White Pass fuel distribution operation was located on the downtown waterfront. Lloyd Ryder described it as follows:

> *Right in front of the Regina Hotel, they had a dispensing place there (on a spur on the river side). They used to dispense gasoline and oil there. They had a spur line there. And they'd bring over their tank cars on the train. And the reason the spur was there, they filled gas barrels down on the dock to load on the barges and that to take to Dawson. So there was a lot of diesel and gasoline. It was put in the barrels from there and on to the boats.*[100]

Not long after Mr. Ryder got into the fuel delivery business in 1948, the fuel dispensing operation moved down to the Marwell area. A 1950 preliminary survey plan showing the area describes it as the "British Yukon Navigation Co. Petroleum Depot" and shows the railway tracks extending to the dock site.[101] Initially, fuel was transported to the site via tanker cars on the railway. Later it was moved by the pipeline from Skagway to Whitehorse then from the Upper Tank Farm via pipeline to the Bulk Plant. Other fuel products that arrived in cans, such as

kerosene, white gas, etc. were stored in a warehouse. Although White Pass moved diesel and heating oil by pipeline, the railway continued to transport gasoline in tanker cars. The gas was then piped from the riverfront to storage tanks.[102]

There were two fuel dispensing sites. One, between the railway and dock, was a loading pipeline with hoses and nozzles right by the riverbank used just for the boats. Fuel drums were filled right on the barges. On the inland side of the tracks was a loading stem for the fuel trucks. This consisted of an upright pipe about 20 feet high, a valve and a horizontal stem pipe that swung around on a swivel to load the barrels or fuel trucks.

During its occupation of the site, White Pass established a barrel reconditioning pond near the river used to clean barrels and truck tanks. Although there was no ore handling at this site, lead and zinc have been found in the barrel washing area. It has been suggested that ore containers from the trucks bearing ore concentrates from Faro were steam cleaned here.[103]

6.3.3 Land Tenure

This business was located on a property referred to as Lot 12 (REM), Group 5 (804), Plan 8406 (street address: 146 Industrial Road, Whitehorse, Y1A 4Z2). This is a much reduced portion of the original Lot 12 which was crown land. There has been no survey for this lot since 1899. Basically, this irregularly shaped parcel consists of the land that was left over once various other portions were subdivided out. According to a title search at the Yukon Land Titles Office, the property was patented to the British Yukon Railway Company on 29 August 1960 (Patent No. 23773).

On June 9, 1995, this was one of four properties transferred to White Pass Transportation Ltd. under Certificate of Title # 95Y503. On the same date, WPT then sold the property to North 60° Petro Ltd., Certificate of Title #95Y522.

In the early 1980s, Block 298 - the northern portion of Lot 12, Parcel A - was surveyed out and transferred to White Pass (notification number 68140). This also became one of the properties to be sold to North 60° Petro Ltd. by White Pass Transportation Limited.[104]

6.3.4 Contaminated Site on North 60° Petro Ltd. Property, Lot 12 (REM)

On 4 September 1998, a site on the waterfront of the North 60° Petro Ltd. property was designated a contaminated site under the Environment Act (Yukon). Below are notes prepared by Gartner Lee Ltd. regarding the possible causes of this contamination.

6.3.4.1 Potential mechanism causing hydrocarbon contamination

It is unlikely that the hydrocarbon contamination found today at the North 60° Petro site is significantly related to the refinery operations. Based on the literature review and aerial photography interpretation provided in this report, this conclusion is due to:

- There were no significant refinery related structures on the two North 60° Petro parcels of land other than the 'Sump' and the Oil-Water separator (see 1942 aerial photograph). No contamination has been documented to date associated with the former 'Blowdown' building.
- The current North 60 site is located on the 'clean-end' of the former refinery. The facilities on these parcels were for cleaning process *water* and run-off prior to discharge to the river.[105]

- The Sump was used to collect run-off water from the site before it was cleaned in the Oil-Water separator.
- The Oil-Water separator was used to clean process water prior to discharge to the river. Hydrocarbon products skimmed off and collected by the Oil-Water separator were taken to the 'Slop Tanks', and apparently not discharged locally.

Therefore, based on these activities it is unlikely that extensive hydrocarbon contamination would be associated with these structures.

The contamination levels mapped by Jacques Whitford (1998) it seems would be related more to post refinery fuel handling operations at the site. Specifically:

- The elevated levels of BTEX, VPH and LEPH found by Jacques Whitford would be more indicative of a gasoline type hydrocarbon product as opposed to weathered crude oil that could be associated with the refinery.
- The contouring of Benzene and LEPH concentrations as shown on Jacques Whitford drawing C6190-4 show a plume of contamination originating from the 'Y' Tank area and progressing toward the river.
- In our March 1999 site visit, Tom Martin said that the 'Y' Tanks had always been used for gasoline storage. Mr. Martin indicated that gasoline was brought to the site by rail car and transferred to the tanks.
- It is likely that poor fuel handing between the railcars, trucks, 'Y' tanks, and riverboats could easily result in numerous small spills over many years which could result in substantial soil contamination.
- In the 1963 aerial photo, there appear to be a small AST adjacent to the river. This location appears to coincide with an area of elevated LEPH concentrations found in monitoring well MW9.

It is also important to note that the refinery sump appears intact in the 1952 aerial photos, but appear to be becoming in-filled in the 1963 photo, and today is not longer visible. It is quite probably that waste material such as crushed and damaged fuel drums could have been deposited in the sump during its in-filling.

6.3.4.2 Potential mechanism causing contamination of the barrel reconditioning pond

Sampling of the water and soils in and around the Barrel Reconditioning Pond by Golder Associates (1996) indicate that:

- Soils are contaminated above Industrial Standards for chromium and zinc (in one sample). Lead levels are elevated (up to 1600 ppm) but not above applicable matrix standards for this industrial site.
- Hydrocarbon products have impacted the water quality in excess of B.C. MELP 1998 regulations for petroleum hydrocarbon in water.

The lead and zinc contamination at this site may be related to the washing and cleaning of ore trucks on site. The chromium contamination seems anomalous, but chromium is a constituent in yellow paint. Many of the barrels used for Jet-B fuel are orange in colour. These barrels probably were stripped of their paint during reconditioning, and the paint chips flushed into the Barrel Reconditioning Pond.

Hydrocarbon contamination seen in the water of the pond could be either related to surfacing of contamination found in the groundwater, surface run-off from the site into the pond, or a result of rinsing and cleaning barrels in the reconditioning plant.

6.4 Pipeline between Upper Tank Farm and Bulk Plant Area

This easement was established for the pipeline between the upper tank farm west of the airport and the refinery downtown. This corridor is covered by three different plans surveyed between 1955 and 1963.

(The following plans progress from NE to SW or, from downtown up to the tank farm.)

CLSR No.	LTO No.	Date of Survey	Date of Registration	Surveyor
42716	33815	15 Nov. 1955	April 1956	G. Babbage
42732	33727	20 April 1956	April 1956	G. Babbage
51680	33728	20 Sept. 1963	21 Nov. 1963	Dennis Browne

These lots were untitled but were surveyed to provide an easement for the existing pipeline. On 15 November 1960, the crown granted the British Yukon Railway Co. an easement to operate and maintain an oil pipeline across Lots 263 and Industrial Road.[106] The remaining easements across Crown land would have been covered by the agreement discussed in Section 6.2.2.

The pipelines from the upper tank farm to the downtown area was one of the components of Canol No. 2, consisting of the pipeline between Skagway and Whitehorse and the Upper Tank Farm. This operation, together with the pipeline from Whitehorse to Fairbanks, proved to be useful in the postwar era and the U.S. government wished to maintain control of the facility.

On 30 June 1946, the Canol No. 2 pipeline was put into an "inoperative condition," then was re-activated on 1 December 1947 on the basis of a tentative agreement between the U.S. Army and White Pass "for an indefinite term of operation." In April 1949, a contract was signed between the United States and the White Pass and Yukon Route Company. The U.S. Government contracted with the railway company for the right to maintain the pipeline, while the railway contracted with the U.S. for the right to use the pipeline for its own products.[107] White Pass agreed to pump fuel for the U.S. Army in exchange for being able to use the pipeline for a portion of the year to pump its own products. Gasoline and aviation gas, due to their flammability, were no longer pumped through the line. Canol No. 4, the pipeline from Whitehorse to Fairbanks, was reactivated so that stove and diesel oil could be pumped from Canol No. 2 into Alaska.[108]

In the mid 1950s, the American and Canadian governments entered into negotiations to transfer remaining Canol assets to Canada. The U.S. was planning a new larger pipeline up the Haines Road which would be more efficient for pumping fuel to Fairbanks. White Pass negotiated directly with the U.S. Army to purchase that portion of the Canol No. 2 pipeline on American ground, from Skagway to the US/Canada border. On 1 April 1958, the Canadian government accepted transfer of the portion of the pipeline located within Canada.[109] White Pass then began leasing the facility from Canada. For a period, the upper tank farm near the airport was divided, with about half of the facilities being used by Alaska Yukon Refiners and Distributors and the

remainder being retained by White Pass. White Pass also kept the use of the two pipelines running between the tank farm and its Petroleum Depot in the Marwell area.[110]

In 1960, the White Pass and Yukon Corporation offered the federal government $125,000 for the oil pipeline related facilities known as Canol No. 2 located in Canada. This offer was accepted by the Canadian government in November 1961 and the actual sale took place in 1962. It took many years and a number of further agreements, however, to sort out the land tenure for the various facilities. One portion of the pipeline operation referred in the original offer to purchase were the 3-inch and 4-inch pipelines running from the Whitehorse tank farm to "our petroleum plant in lower Whitehorse." According to a White Pass official, "These lines were salvaged and rebuilt by us, after having been abandoned and substantially cut up and pilfered following the shut down by the U.S. Army after the war." [111]

7.0 CLEANING UP THE TAR PIT: FOUR DECADES OF NEGOTIATIONS

Early in the morning of 3 April 1958, a man accidentally walked into the tar pit and was stuck for several hours. Eventually he was extricated with the help of a crew of army firefighters and then taken to the hospital where he soon died. A month later, six members of a Coroner's Jury determined that the man had died "as a result of cold and exposure due to accidentally becoming immersed in an oil pool." [112]

The jury then made the following recommendation: "We the jury strongly recommend that the oil pool which has proven to be a hazard to life be removed by whatever means necessary as soon as possible."[113]

Thus began forty years of trying to determine answers to the following questions:

- How was the Marwell tar pit created?
- Who was responsible for clean-up of the pit?
- What was the best method or methods to be used for clean up?

The first question was addressed in Section 6.1.1. This section of the report deals primarily with the second question and to a lesser extent with the third. Below is a chronological summary of some key pieces of correspondence in which various government representatives have discussed these issues since the time the coroner's jury issued its recommendation in May 1958. Most of the following items come from files at either the Department of Renewable Resources (RR) or Environment Canada, Environmental Protection Services (EPS).

1958

20 May 1958 - Brigadier J.R.B. Jones, Northwest Highway System to Dept. of Northern Affairs and National Resources. stating that 17 Works Coy. RCE had put barbed wire fence around pit and put up "Danger" signs.
"However, **this pit is located on Crown land for which the Department of Northern Affairs and National Resources is responsible**. It is therefore requested that the up-keep of the fence or the disposal of the oil be taken on by your Department." (RR)

22 May 1958 - F.H. Collins, Commissioner, to B.G. Siverts, Director, Northern Admin. and Lands Branch.
- previously the lighter residual oil of pit had been used by the Canadian army for dust control, but "upon the depletion of this lighter oil the pit was abandoned and in the meantime the original fence around it had fallen into a state of disrepair."
- refers to accident and new fence put up by DND at his request.
"However, as also stated by them, this pit is on Crown land which is part of the property to be exchanged with the White Pass and Yukon Route for some of theirs."
- wants Federal Resident Engineer to check pit and fence. (RR)

29 May 1958 – L.G. MacQuarrie for Assoc. Chief Engineer, Dept. of Northern Affairs and National Resources to Mr. R. E. Stauch, Whitehorse.
- requesting regular inspection and repair of tar pit fence. "Emergency repairs must be made immediately while foreseeable repairs, not of an emergency nature, such as replacement should receive prior approval from this office." (RR)

13 August 1958 - RCMP investigation re further complaints re dangerous condition of tar pit.
- mentions that despite the new fence, pit is still easily accessible. Excerpts
2. . ."On checking the pit it was found that a considerable amount of the waste oil appears to have been drained from it, nevertheless it was found that in the same area there was a depth of as much as four feet of this oil and water mixture."
4. Perusal of p.c.r. reveals that Officials of the Territorial Government stated they intended to drain the pit as well as possible and then bulldoze dirt on top of it. This would seem to be the only safe way in which this hazard could be eliminated as the height of the liquid will rise if any amount of water is caught in this pit.
5. Apparently very little attention was paid to the recommendation of the coroner's jury, which was as follows: "We the jury strongly recommend that the oil pool, which has proven to be a hazard to life, be removed by whatever means necessary as soon as possible." Cst. R. O. Walling #16993, Whse. Detachment. (RR)

30 Sept. 1958 – Insp. J. T. Parsons, RCMP, Whse. to Commissioner
"The pit was surveyed at the time of the accident and it is the opinion of the engineers that there is no feasible method of draining off the residue or filling in the pit., as there is still 3 - 4 feet of very heavy oil and tar which cannot be absorbed by the soil. The possibility of burning was considered; however this type of residue does not burn without the addition of thousands of gallons of gasoline. The burning would take a number of days and would completely block the airstrip with black smoke clouds during this period.
"As **this pit is located on Crown land for which the Department of Northern Affairs and National Resources is responsible**, this headquarters forwarded a letter to that department on May 20, 1958, pointing out that the pit had then been fenced and signed and that it was now their responsibility. . ." (RR)

1960s
10 August 1960 - R.G. Robertson, Deputy Minister of Northern Affairs & National Resources to F.H. Collins, Commissioner Y.T.
- mentioned that F.H. was to consult with Brigadier Jones "to find a mutually satisfactory method of ending the danger posed by the existence of the pit and of determining what agency would carry out the work. You were to let me know the conclusions you came to, with an estimate of cost, so that if this Department or the Territorial Government carried out the work **we could secure from National Defence, before the work began, an assurance that funds would be available to cover the expense."** (RR)

25 April 1960 - G. B. Starr, Territorial Engineer to F.H. Collins.
- mentions original amount of oil placed in pit was 900,000 gallons about half of which was used by DND for dust control on streets; talks about nature of residue, the fencing ("Fencing is a temporary measure only. There is a six strand barb wire fence around the pit now.") and possible disposal. States oil too soft to be used as an asphalt or a dust layer "where it could then be picked up on people's feet, therefore, if it cannot be used outside of towns it would have to be hauled away, or drained and covered at considerable cost." (RR)

19 September 1960 - G. B. Starr, Territorial Engineer to F.H. Collins.
- other than hauling the oil away "(perhaps to use on the road as dust layer where people do not walk) the only other solution, without a high cost, is to place of fence around the pit which will keep out trespassers."
- estimates cost of a page wire fence as being $3,900.
- expresses concern about children playing in the area. (RR)

29 January 1962 - G. B. Starr, Territorial Engineer to K. MacKenzie, Territorial Treasurer.
- note re fence for oil reservoir, Provides a summary of actions regarding the fence since April 1958 including reference to the Deputy Minister's letter to the Commissioner dated March 31st 1960. **"It would appear that the Department of National Defence is prepared to accept financial responsibility, but wishes to have the work done in the most economical manner that is mutually acceptable."** (RR)

ca. early 1960s – YTG Dept. of Highways crews attempt to clean-up pit. According to statements from a former employee who worked on the site, they tried various strategies including:
- used a dragline to haul some of the tar which was hauled to the old dump site by McIntyre Creek along the Yukon River
- used a cat to push dirt from the embankment (Takhini) to backfill the pit and try to cover what remained
- **"He could provide no further information on why YTG got involved except to say that they were the only ones around beside the Army."** (EPS)

1980s

6 November 1984 - Colin E. Wykes, Director, EPS, Yukon Branch to Chris Knight, Director of Lands, Government of Yukon.
- drawing attention to the problem of the tar pit, brief reference to history of site and previous YTG clean up efforts. **"We foresee a YTG involvement due to the land ownership and a previous history of work at the site."** (EPS)

4 Mary 1985 – A. M. Hambridge, Community Planning Advisor, C&TS, to Colin E. Wykes, Director, EPS, Yukon Branch.
- responding to letter re tar pit. Had been unable to examine site due to snow cover. **"The problem is within the authority of the Lands and Housing Branch of this Department."** (EPS) [In subsequent correspondence, federal officials interpret this statement as meaning that the Yukon is taking responsibility for the site.]

25 July 1989 – Whitehorse Star, Editorial – "Stopping the Flow."
". . .The Yukon government may own the land now but the violation occurred while it was under federal ownership. Logically, the clean-up should become a cost-sharing exercise, and Imperial Oil should receive a friendly tap on the shoulder as well." (EPS)

27 September 1989 – announcement that an Interdepartmental Working Group had been formed made up of representatives of the federal lands branch (DIAND), territorial lands branch (C&TS), the City of Whitehorse, and Environmental Protection (DOE) "to form a joint action on the waste oil contamination of a lot in the Whitehorse Industrial Subdivision." (EPS)

1990s
1991 – Yukon Environment Act passed by Yukon Legislative Assembly.

February 1992 - Piteau Engineering conducted a Phase II Site Assessment of the tar pit. (RR)

August 1992 – Piteau Engineering conducted a small supplementary program to delineate the extent of contamination at the southern edge of the tar pit, into complete construction of a parameter groundwater quality monitoring system. (RR)

October 1993 - a consultant retained by C&TS, YTG conducted a pilot scale thermal desorption remediation program. Total program estimated to cost $ 3,405, 000 plus an additional $150,000 for engineering. (RR)

1994 - Design, installation and demonstration testing of a biological treatment process using a biological slurry reactor was carried out from January to April, 1994. This appeared to be a feasible treatment, but further test work was recommended. Estimated cost for treating the pit was four million dollars. (RR)

7 October 1994 – Mickey Fisher, Minister of Renewable Resources, to Sheila Copps, Deputy Prime Minister.
". . . Consultant studies suggest that remediation costs may be in excess of four million dollars. . . **Given the history of this site, it would be unreasonable to expect the City of Whitehorse or the Yukon Government to take responsibility for this kind of undertaking**. . . I wanted you to be aware of the site for inclusion on any list of contaminated US Military sites in Canada."

16 April 1997 – Eric Fairclough, Minister of Renewable Resources, to Ron Irwin, Minister, Indian and Northern Affairs, Canada
- expressing concern over the demise of the Arctic Environmental Strategy.
"AES funds were also used to delineate contamination present at an abandoned US military oil refinery in downtown Whitehorse where some 27,000 cu. metres of hydrocarbon contamination still exists. . . .
"While we have developed standards consistent with other jurisdictions to deal with contaminated sites, **it is well beyond our capability to take on severely contaminated sites resulting from federal or military presence here. . .**
"I would appreciate you assurances that the Federal Government will continue to address its responsibilities for cleaning up these old contaminated sites now, after devolution and in the absence of US funding."

16 April 1997 : Part of resolution adopted by the Yukon Legislative Assembly:
"THAT it is the opinion of this House that:
(1) contamination at abandoned military sites could have detrimental impacts on the Yukon's environment, fish, wildlife and people who depend on country foods;
(2) clean-up of these sites should be undertaken on a priority basis; and
(3) given the Government of Canada's ownership and jurisdictional responsibility for most of the Yukon's land mass, both now and at the time the sites were contaminated, Canada must retain the responsibility for reclamation of these sites; . . . ."

17 April 1997 – Robert Bruce, Speaker of the Legislative Assembly, to Prime Minister Jean Chretien communicating full text of April 16th resolution by Yukon Legislative Assembly.

25 April 1997 – Lloyd Axworthy, Minister of Foreign Affairs, to Piers McDonald, Government Leader

- summarizing the negotiations and agreement between Canada and U.S. re environmental issues at former U.S. installations. Does not address funding of Marwell site.

15 May 1997 – Prime Minister Jean Chretien to Robert Bruce, Speaker of the Legislative Assembly. "I understand that theYukon Government and Yukon First Nations were consulted during the course of negotiations with the U.S. . .
". . . Canada will continue to work closely with theYukon Government and Yukon's aboriginal communities toward the common goal of remediating environmental conditions on former Canadian and U.S. military installations."

21 May 1997 - Piers McDonald, Government Leader to Lloyd Axworthy, Minister of Foreign Affairs. ". . . documented contaminated sites are either not scheduled for cleanup or are not included under the agreement. . . However **the problems with former US military sites in the Yukon are part of a bigger picture which is beyond the scope of DIAND's present Contaminants Program.**" Uses Marwell tar pit as an example and forwards previous correspondence re the site.

30 May 1997 - Due to concerns regarding evidence of tar seeps along the bank of the creek northeast of the tar pit, C&TS, in consultation with EP&A, excavated a one meter deep by 13 meter long interceptor trench adjacent to the creek. (RR)

8 July 1997 - Eric Fairclough, Minister of Renewable Resources, to Prime Minister Jean Chretien. Gives history of Marwell tar pit including death in 1958 and previous government correspondence re the site. "The coroner's inquest recommended that the Federal Government clean up the site. It has never been done and the cost is unreasonable for a small jurisdiction, like the Yukon, to assume.
. . ."The U.S. military presence in the Yukon during and after the war was significant as was the messes they left behind. I would disagree with the Federal position that the Agreement represents an equitable and significant U.S. contribution."

4 May 1998 – The Marwell Tar Pit was designated by the Minister of Renewable Resources as a contaminated site pursuant to the Environment Act (Yukon) and the Contaminated Sites Regulations.

18 December 1998 – Jane Stewart, Minister of Department of Indian Affairs and Northern Development, to Louise Hardy, Yukon MP.
" . . . I'm aware that the Government of Yukon declared Marwell tar pit a contaminated site under the Yukon Environment Act. The land in question is located on territorial land within the boundaries of the city of Whitehorse and does not fall under the jurisdiction of the Department of Indian Affairs and Northern Development (DIAND).
"DIAND has worked in partnership with the Government of Yukon and others to assess and develop remediation options at several sites including the Marwell tar pit. We will continue to provide advice and assistance when possible." (RR)

8.0 CONCLUSIONS

Based on the research conducted to date, it is possible to make the following statements:

- In the U.S./Canada treaty for the Canol Project No. 1, the building of a pipeline and refinery (CTS 1942/23), Canada accepted responsibility for furnishing lands required for the project.
- The federal Department of Mines and Resources handled all transactions for properties required by U.S. Defence Projects in Northwest Canada.
- During refinery construction, the Department of Fisheries expressed concern that refinery operations might pollute the Yukon River, specifically the discharge of hydrofluoric acid, oil and sewage.
- The lands occupied by the Whitehorse refinery were a mixture of privately-owned land belonging to the British Yukon Railway Co. and crown lands, both surveyed and unsurveyed.
- The initial occupation of the British Yukon Railway Co. land by US forces, in order to build the refinery and construct a railway spur, took place under a "right of entry" negotiated between the United States and White Pass.
- In the case of British Yukon Railway Co. lands in the refinery area, Canada leased the lands required directly from BYRCo. for $1.00 per year (Lease No. 25, signed 10 January 1945) and furnished a Permission to Occupy to the United States Government (P.T.O. 110).
- Canada, Department of Mines and Resources ordered the survey of Lot 263 in October 1944.
- All crown lands required for the refinery were also furnished by Canada to the U.S. under Permission to Occupy 110.
- By renewing the refinery lease in February 1946 when the wartime lease expired (Lease No. 25A), Canada accepted continued responsibility for the property occupied by the refinery.
- After the cancellation of Lease 25A, Canadian government representatives asserted that the refinery purchaser needed to make arrangements directly with the BYRCo. for use of White Pass land during the dismantling of the refinery.
- The Canadian government was involved in the finalisation and approval of the sale of the refinery to Imperial Oil Limited.
- At the same time, however, a senior government official asserted that the purchaser, Imperial Oil Limited, was responsible to the Department of Mines and Resources "for the proper tidying and cleaning up of the land."[114]
- A progress report submitted by a Forestry engineer in March 1948, indicates that there was at least limited monitoring of the site by federal officials during the dismantling of the refinery.

- The creation of the Marwell tar pit conformed with then-current standards for the treatment of used oil products, as laid out by Canada for the dismantling of the Canol pipeline in 1947.

- During the 1950s, the Department of National Defence contributed waste oil to the Marwell tar pit and used products from the pit to control dust on highways.

- Correspondence from a DND official in 1958 confirmed that the Department of Mines and Resources was responsible for the site and any necessary clean up of the tar pit.

- With the purchase of the Canadian portion of the Canol No. 2 pipeline from the Canadian government, White Pass became responsible for the operation of the pipelines between Upper Tank Farm and the White Pass bulk plant in 1962.

- Up until 1 April 1958, the two pipelines running between the Upper Tank Farm and the White Pass petroleum depot were leased by White Pass from the American government as part of lease for the Canol No. 2 pipeline facilities. When the Canadian government took over these facilities from the U.S., White Pass then leased these lines from Canada. In 1962, White Pass purchased the Canadian portion of Canol No. 2 and acquired ownership and control of these pipelines.

- The majority of the refinery operations were not carried out on the North 60° Petro site except the oil-water separator, fuel storage and associated pipelines. The bulk of the operation was located on the site which is now the Highways Maintenance Yard. Based on this the following observation was made:
  - Given the normal operation of the oil-water separator, it is unlikely that it would have been a source of significant hydrocarbon contamination.

- Since contamination at the North 60° Petro does not appear to be significantly related to refinery operations, it is likely that this contamination occurred as a result of the operations of the White Pass Petroleum Depot.

- In 1970, the parcel of land occupied by the Marwell tar pit was transferred to the Commissioner of the Yukon as part of a large block land transfer by Privy Council Order (PC 1970-1448).

- Due to the many fuel handling operations in the Marwell area, there are several spots contaminated by careless handling or spills of hydrocarbon products. These include leaks in the pipeline between the Upper Tank Farm and bulk plant, tank leaks, overfilling of tanks, ruptured lines from fuel tanks, spills, etc.

- On 18 December 1998, the federal Minister of Indian Affairs and Northern Development, Jane Stewart, disclaimed any federal financial responsibility for clean up of the Marwell tar pit, stating that the site was located "on territorial lands within the City of Whitehorse and does not fall under the jurisdiction of the Department of Indian Affairs and Northern Development (DIAND)."

- There is not enough information at this point to delineate the source of the tar around the S (spherical) tanks on the North 60° Petro site or on the YTG Grader Station site.

9.0 SITE SUMMARY NOTES

Contaminated Site: Marwell Tar Pit, Lot 263 (REM), Group 806	
Chemicals listed in Notice of Designation of Contaminated Site	Napthalene, phenanthrene, pyrene, benzo (a) anthracene, benzo (k) fluoranthene, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, nonaqueous phase liquids, manganese.
Actions and time period when chemicals were used & disposed of.	Ca. 1943 – 1947. Crude oil storage on site. Winter of 1947/48 – emptying of refinery "tank bottoms" or sludge into the bermed pit formerly occupied by a 55,000 gallon crude oil storage tank (see Section 6.1.1). Subsequent local disposal of waste oil (until covered by earth in late 1950s or early 1960s). (Section
Site Operators	• Standard Oil, under contract to U.S. Government, operated the refinery and the pipeline between Norman Wells & Whitehorse. • W. W. Barnes Co. dismantled & transported the oil refinery, acting under contract to Imperial Oil, the purchaser of the refinery. (Section 5.4.2) • Imperial Oil as owner of the refinery, from 1 September 1947, was responsible for the removal of the refinery structures and leaving the area "in a clean and tidy condition." (Section 5.4.2)
Land Tenure	• 1900 -1970: Government of Canada • (10 Jan. 1945 – Feb.1946: US Army under Permission To Occupy No. 110 from federal government.) • 1970 – present: Government of Yukon

Contaminated Site: North 60° Petro Site, Lot 12 (REM), Group 806	
Chemicals listed in Notice of Designation of Contaminated Site	Benzene, ethylbenzene, xylene, toluene, chromium, zinc, pyrene.
Actions and time period when chemicals were used & disposed of	See Section 6.3.4.1.
Site Operators	• Bechtel-Price-Callahan under contract to U.S. Government, built the refinery in 1943/44. • Standard Oil, under contract to U.S. Government, operated the refinery 1944/45. White Pass and Yukon Corporation Ltd, or appropriate subsidiary company – as operator of the petroleum depot from ca. late 1940s and owner of the land from 29 August 1960.
Land Tenure	• 1900-1960, Government of Canada • (10 Jan. 1945 – Feb.1946, US Army under lease to federal government.) • 29 August 1960 – patented to British Yukon Railway Co. • 9 June 1995 - titled to White Pass Transportation Ltd. • 9 June 1995 to present - North 60° Petro Ltd.

Area of Potential Contamination: Tars on North 60° Petro Site, Lot 12 (REM), Group 806	
Potential contamination on site	Tarry substance seen on the ground surface in area of 'S' tanks.
Potential time period of contamination	Unknown
Potential mechanism causing contamination.	Unknown
Site Operators	• Bechtel-Price-Callahan under contract to U.S. Government, built the Canol Refinery in 1943-44. • Standard Oil, under contract to U.S. Government, operated the refinery 1944-45. • White Pass and Yukon Corporation Ltd, or appropriate subsidiary company, operated the petroleum depot from ca. late 1940s to 1995.
Land Tenure	• 1900-1960, Government of Canada • (10 Jan. 1945 – Feb.1946: US Army under federal P.T.O. 110. see Section 5.3.) • 29 August 1960: patented to British Yukon Railway Co. • 9 June 1995: titled to White Pass Transportation Ltd. • 9 June 1995 to present: North 60° Petro Ltd.

Area of Potential Contamination: Tars on YTG Grader Station Site, Lot 11 (REM), Group 806*	
Potential contamination on site	Tarry substance seen on the ground surface in yard.
Potential time period of contamination	Unknown
Potential mechanism causing contamination.	Unknown
Site Operators	.• 1943-44: Bechtel-Price-Callahan, under contract to US gov't., built Canol Refinery • 1944-45: Standard Oil operated refinery, under contract to US gov't. • 1947-48: Refinery dismantled by W.W. Barnes Co. under contract to new owner, Imperial Oil. • ca. 1948 – 1964: DND, highway maintenance camp. • 1964 - ?: Government of Canada, Department of Public Works • ca. 1960s: operations taken over by Gov't. of Yukon.
Land Tenure	• 1900 -1960: British Yukon Railway Co. • (Jan.1945 – Feb. 1946: Lease 25, Canada leased site from BYRCo. & offered to U.S. under P.T.O. 110; Feb. 1946 – Feb. 1947: Lease 25A, an extension of Lease 25. See Sections 5.3 & 5.4) • 1960 – 1970: Government of Canada • 1970 – present: Government of Yukon

*Needs to be confirmed as site indicated on map is very close to the lot line dividing Lots 11 (former White Pass land) & 12 (crown land). Land tenure notes based on site being on Lot 11.

Endnotes

Abbreviations:

DMR – Department of Mines and Resources
DND – Department of National Defence
NAC – National Archives of Canada
NL – National Library
NWSC – Northwest Service Command
WP&YR – White Pass & Yukon Route
YA – Yukon Archives

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[1] National Library, Canada, Statutes, 63-41 Victoria, C53, an act respecting the British Yukon Mining, Trading and Transportation Company, 7 July 1900.

[2] YA, WP&YR Corporate Records, Series VI: Land Records. VI-1-B. Schedule of Patents for Whitehorse Lots. COR 813, files 1 & 3.

[3] The ledgers at Federal Lands show that Lots 10, 11, 14, and the southerly 3/4s of Lot 16 were patented to the various proxies on March 3, 1900; Patent No. 72563.

[4] North-West Mounted Police, *1899 Annual Report*, "Report of Superintendent Z. T. Wood, Commanding 'H' Division" p. 23.

[5] NWMP, *1900 Annual Report,* "Report of Superintendent P.C.H. Primrose, Commanding 'H' Division," p. 17.

[6] Yukon Archives: YRG I, Series 1, vol. 31, f. 16184, GOV 1641; Series 5, vol. 8, f. 580, GOV 1954; Lloyd Ryder interview, 11 March 1999.

[7] YRG I, Series 5, vol. 8, f. 580, GOV 1954; Federal Lands ledgers. The Dixon application was officially cancelled for Lot 12 on 27 July 1931, and for Lot 13, 23 February 1953.

[8] *Whse. Star*: 11 Oct. 1912; 24 Sept., 22 October 1915.

[9] YRG I, vol. 48, f. 30485 – Correspondence file, Indian Reserve, Whitehorse, 1916-1919.

[10] Lloyd Ryder, 11 March 1999.

[11] Richard Diubaldo, "The Canol Project" in *American-Canadian Relations*, 1977, p. 180.

[12] Treaty series, 1942, No. 23; exchange of notes between Canada and the United States of America constituting an agreement for the construction of a pipeline and a refinery in the Yukon Territory/Canada. Ottawa: King's Printer, 29 June 1942.

[13] NL, Canada Treaty Series (CTS), 1942/24, Exchange of notes, 14 and 15 Aug. 1942, between Canada and the United States of America for the establishment of an oil supply line from Skagway to Whitehorse.

[14] Canada, Treaty Series. Exchange of Notes, 28 December 1942 and 13 January 1943; 18 January, 17 February and 13 March 1943. Cited in Diubaldo, p. 193.

[15] Gordon Bennett, *Yukon Transportation: A History* (Ottawa, Indian and Northern Affairs, Parks Canada 1978), pp. 135,137, 164.

[16] NL, Canada Treaty Series (CTS), 1943/3, Exchange of notes, 22 and 23 Feb. 1943, between Canada and the

United States of America recording an agreement respecting the White Pass and Yukon Route Railway. Includes PC order in council 10067, 6 Nov. 1942, "which establish[es] the legal foundation for the operation and maintenance by the Government of the United States of America for the duration of the war of the Railway owned by the British Yukon Railway Company and the British Columbia-Yukon Railway, which form parts of the White Pass and Yukon Route."

[17] NL, Canada Treaty Series (CTS), 1943/2, Exchange of Notes, 27 Jan. 1943.

[18] NL, Canada Treaty Series (CTS), 1944/35.

[19] NL, Canada Treaty Series (CTS), 1945/3.

[20] Cabinet War Committee, Minutes, Volume 17, 7 February 1945. Cited in Diubaldo, pp. 189 &194.

[21] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, part 4, 1945-47, Memo, secret, re withdrawal of United States forces from Canada, 18 Apr. 1946.

[22] NL, Canada Treaty Series (CTS), 1946/41.

[23] Diubaldo, p. 180.

[24] YA, 92/51, U. S. Army, Northwest Service Command. Finnie's Report: Whitehorse, Skagway and Haines. June 28 - July 8, 1943; pp. 5-6: 8 July 1943.

[25] Laurent Cyr interview, recorded by H. Dobrowolsky in Whitehorse, 22 March 1999. YA, YRG I, Series 1-A, vol. 7, no. 466Eii, GOV 1613. 10 April 1948 - C. J. Rogers, Pres. & Gen. Mgr., WP&YR to R. A. Gibson, Dr. Dept of Mines and Resources.

[26] Gudrun 'Goody' Sparling, telephone conversation, 10 February 1999.

[27] YA, Map H-523: Whitehorse airport, 1943.

[28] Richard S.Finnie, *CANOL, The sub-Arctic Pipeline and Refinery Project constructed by Bechtel-Price-Callahan for the Corps of Engineers, United States Army, 1942-44* (San Francisco, Ryder & Ingram, 1945), p. 172.

[29] YA, U.S. Army, NWSC. Monthly Progress Reports, May 1944.

[30] Diubaldo, p. 180; YA, 92/51, U. S. Army, Northwest Service Command, 1942-46. MF Series # 40 with records from RG 338, Records of United States Army Command, 1942-46. Special Committee Investigating the National Defense Program, United States Senate: Canol (2/45).

[31] S. R. Gage, *A Walk on the Canol Road* (Oakville, Mosaic Press), p. 131.

[32] Diubaldo, p. 184.

[33] YA, YRG I, Series 1-A, vol. 7, no. 466Bii, GOV 1613. Land acquisitions in Y.T. for Defense Projects – General Correspondence, 1943-1946. Particulars of Leases, etc., From – White Pass and Yukon Route; To: United States authorities as furnished by Mr. C. J. Rogers – Ottawa, August 28th, 1943. Includes: (8) unsigned copy Right-of-Entry granted to United States of America to acreage Lots 10, 11 and 14 North of Townsite of Whitehorse from British Yukon Railway Company (no date).

[34] YA, YRG I, Series 8, vol. 3A, File 1, TS 8, GOV 2073. 8 January 1943 – Dominion Lands Agt. to Clyde J. Fitzgerald, NW Division Engineer, Skagway re procedure for applying for lands occupied by US in Yukon Terr.; 2 August 1943 – Reuben L. Tatum, Lt. Col., Corps of Engineers to L. Higgins, Dominion Land Agent, Whse.

[35] YA, YRG I, Series 1-A, vol. 7, no. 466Ei. GOV 1613.

[36] Series 1-A, vol. 7, no. 466Bii, GOV 1613. 24 May 1944, C. K. LeCapelain, Whse. to R.A. Gibson.

[37] YA, YRG I, Series 1-A, vol. 7, no. 466Bi, GOV 1613. Dept. of Mines and Resources, List of Permissions to Occupy granted on Privately Owned Lands in Yukon Territory after Leases with the Owners have been executed by the Dept. of Mines and Resources, 15 November 1944. NAC, RG85, Northern Affairs Program, Series D-2-a, Volume 2260, File 21-2-2-2, Pipelines - Canol projects - oil refinery at Whitehorse, 1943-46, defence project lease # 25, Yukon Territory, file # 13618, NWT&Y, 10 Jan. 1945.

[38] Series 1-A, vol. 7, no. 466Ei, GOV 1613. 18 January 1944, Lt. Col. C. M. Clifford to Maj. Gen. W.W. Foster requesting acquisition of right-of-way of Railway spur to Oil Refinery, Whitehorse.

[39] YA, YRG I, Series 1-A, vol. 7, no. 466Bi, GOV 1613. Dept. of Mines and Resources, List of Permissions to Occupy granted on Privately Owned Lands in Yukon Territory after Leases with the Owners have been executed by the Dept. of Mines and Resources, 15 November 1944. Series 1-A, vol. 7, no. 466Bii, GOV 1613. 23 Aug. 1943 – C. J. Rogers, Pres. WP&YR, to H. Wheeler, Gen. Mgr. YA, WP&YR Corporate Records, Series VI: Land Records, VI-3, Defence Project Leases, 1942-48. COR 817, Folder 1. Record of Defence Project Leases: Nos. 1-30, 1943-48.

[40] YA, 92/51, U. S. Army, Northwest Service Command, 1942-46. MF Series # 40 with records from RG 338, Records of United States Army Command, 1942-46. Special Committee Investigating the National Defense Program, United States Senate: Canol (2/45) and Closing of Canol Project (3/45).

[41] NAC, RG36/7, Special Commission on Wartime Project in Northwest Canada, vol 2, file 3/5 WWII, W. F. Bramstedt, Standard Oil Co., (Alaska), to all employees, Whitehorse, 9 Mar. 1945.

[42] NAC, RG24, Acc 1983-84/167, Box 6245, file 1034A-107, part 2, RCAF, fuels, lubricating oil & grease, Canol project, 1944-51, Ray Atherton, US embassy, to Norman Robertson, Under Secretary of State for External Affairs, Ottawa, 30 Mar. 1945.

[43] NAC, RG36/7, Special Commission on Wartime Project in Northwest Canada, vol 2, file 3/5 Twenty-fifth report, part 2, Canol Project, [June 1945].

[44] YA, YRG I, Series 1-A, vol. 7, no. 466Eii, GOV 1613.

[45] YA, YRG I, Series I-A, No. vol. 8, f. 466J, GOV 1614. Surplus Defence Project Buildings (Alaska Highway), 1945-46.

[46] NAC, RG85, Northern Affairs Program, Series D-2-a, Volume 2261, File 21-1-2-2, Pipelines - Canol projects - #1 - Norman Wells to Whitehorse - Oil refinery, 1943-46, R. A. Gibson, director, dept of Mines and Resources, Ottawa, to C. J. Rogers, president and general manager, WP&YR, Vancouver, 17 Sept. 1946.

[47] YA, YRG I, Series 1-A, vol. 7, no. 466Eii, GOV 1613. Note: No copy of this lease was found in any of the records searched.

[48] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, ? B. Sinclair, acting director, Lands, Parks and Forest Branch, Mines and Resources, Ottawa, to A. R. Kilgour, 3rd political division, External Affairs, 15 Aug. 1947.

[49] YA, YRG I, Series 1-A, vol. 7, no. 466Eii, GOV 1613.

[50] NAC, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, R. A. Gibson, director, to Mr. Cumming, 6 July 1945.

[51] NAC, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604B, Canol project - disposal of gasoline facilities, 1945-47, C. J. Rogers, president and general manager, WP&YR, Skagway, to George Black, MP, Whitehorse, 20 Aug. 1945.

[52] NAC, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, C. K. LeCapelain, Ottawa, to Mr. Cumming, 29 Oct. 1946.

[53] NA, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, J. E. Gibben, Acting Controller, Dawson, to R. A. Gibson, director, Dept of Mines and Resources, 14 Feb. 1947.

[54] NA, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, J. S. Stewart, Mines and Geology Branch, Dept of Mines and Resources, memo to R. A. Gibson, deputy commissioner of Northwest Territories, re sale of Canol facilities by the U. S. Government, 13 Mar. 1947.

[55] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, ? B. Sinclair, acting director, Lands, Parks and Forest Branch, Mines and Resources, Ottawa, to A. R. Kilgour, 3rd political division, External Affairs, 15 Aug. 1947.

[56] Ibid.

[57] Environment Canada, Environmental Protection Services. From file 4663-2, Waste Management Systems - Disposal Solid Waste, Volume 2: 14 August 1984, Rob McCandless, memo to tar pit file: notes from conversation with Tim Nelson, retired engineer, formerly with Corps of Engineers, U.S. Army in Whitehorse, 1943 to 1951. Other correspondence suggests that the sale had actually been agreed upon in August. (See next note.)

[58] *Whitehorse Star*, 29 August 1947, "Removal Local Oil Refinery to Edmonton Now Under Way."

[59] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, F. H. R. Jackson, Forest Engineer, Whitehorse, to R. A. Gibson, director, Lands, Parks and Forests Branch, Mines and Resources, 1 Mar. 1948.

[60] Environment Canada, Environmental Protection Services, File 4663-2, Waste Management Systems –Disposal Solid Waste, Volume 2. 14 August 1984, Rob McCandless memo to tar pit file.

[61] Lloyd Ryder interview, rec. by H. Dobrowolsky in Whse., 11 March 1999.

[62] NAC, RG85, Northern Affairs Program, Northern Territories and Yukon Branch Central Registry Office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, J. E. Gibben, Acting Controller, Dawson, to R. A. Gibson, director, Dept of Mines and Resources, 13 June 1947.

[63] NA, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, J. S. Stewart, Geological Survey, Bureau of Geology and Topography, Dept of Mines and Resources, Edmonton, to R. A. Gibson, director, Lands, Parks and Forests, Ottawa, 7 Aug. 1947.

[64] NAC, RG85, Northern Affairs Program, Northern Territories and Yukon Branch central registry office, mfm T13942, Vol. 941, file 12604A, Canol project - disposal of crude oil facilities, 1945-50, R. A. Gibson, acting director, Lands, Parks and Forests Branch, Dept of Mines and Resources, Ottawa, to A. R. Kilgour, third political division, Dept of External Affairs, 15 Aug. 1947, enclosing Capelain to Sinclair, 11 Aug. 1947.

[65] Robert J. Burns, Heritage Research Associates, Ottawa, email communication, 27 April 1999.

[66] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol Project), disposition of Canol Project, parts 4 and 5, 1945-49, Summary Inventory, Canol Crude Oil Pipe Line, 10 Sept. 1945.

[67] NAC, RG25, Vol. 6755, file 463-N-40, file pocket, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol Project), disposition of Canol Project, part 9 FP1, 1947, Summary Inventory, Canol Crude Oil Pipe Line and Refinery (Office of the Quartermaster General, fuels and lubricants division), 10 Sept. 1945.

[68] *History of Canada's Oil and Gas Industry*. Gould (Ed.) 1970, Hancock House Publishing.

[69] NAC, RG85, mfm T13949, Vol. 951, file 13186, Refinery at Whitehorse, Y.T., general file, 1943-45, A.H. Perry, district Engineer, Public Health Division, federal building, Vancouver, to C.H. Ferguson, chief, Public Health Engineering Division, Dept of Pensions and National Health, Ottawa, 16 Aug. 1943, with enclosed statistics.

[70] NAC, RG25, External Affairs, Series A-3-b, Volume 2744, File: 463-N-4-40, Disposal of wastes from oil refineries in connection with Canol project, proposed arrangements for, 1943, A.H. Perry, district engineer, Public Health Engineering Division, Dept of Pensions and National Health, Vancouver, memo, re disposal of trade wastes from oil refinery at Whitehorse, Vancouver, 20 Apr. 1943.

[71] NAC, RG85, mfm T13949, Vol. 951, file 13186, Refinery at Whitehorse, Y.T., general file, 1943-45, D.H. Sutherland, for deputy minister of fisheries, Ottawa, to director, Lands, Parks and Forests Branch, Mines and Resources, 11 Feb. 1943.

[72] NAC, RG85, mfm T13939, Vol. 951, file 13186, Refinery at Whitehorse, Y.T., general file, 1943-45, Deputy Minister D.B. Finn, Fisheries, Ottawa, to R.A. Gibson, director, Lands, Parks and Forests Branch, Mines and Resources, 23 Dec. 1943, with encl.

[73] *Site Characterization and Remediation Assessment, Former Whitehorse Refinery, Whitehorse, Yukon.* Report to Anton, Campion, MacDonald, Phillips, Oyler and Buchan; Jacques Whitford Environmental Limited, April 8, 1998.

[74] 18 Dec. 1998, Jane Stewart, Minister DIAND to Louise Hardy, Yukon MP. Copy on file at Dept. Renewable Resources.

[75] Ryder, 11 March 1999.

[76] Environment Canada, EPS, file 4663-2: Note to File, 30 August 1984 re interview with Henry Thibeault, 25 July 1984.

[77] Government of the Yukon, Dept. of Renewable Resources.

[78] Environment Canada, EPS, file 4663-2: Note to File, 30 August 1984 re interview with Harry Johannes.

[79] Renewable Resources files, 25 April 1960, G. B. Starr, Terr. Eng. to F. H. Collins, Commissioner of the Yukon.

[80] Environment Canada, EPS, file 4186-3-19: 3 September 1954 - C. K. LeCapelain, Chief, Lands Division, to J. Aubrey Simmons, Yukon MP.

[81] Starr, op. cit.

[82] RR file: report excerpt identified as: Appendix A: Historical Background. 28480-9600-0263 Rem 1.8.16/91; probably from Piteau Report.

[83] Starr, op. cit.

[84] YRG I, Series 1-A, vol. 7, no. 466Eii, GOV 1613. 28 March 1946 – R. A. Gibson, Dr. Dept of Mines and Resources to C. J. Rogers, Pres. & Gen. Mgr., WP&YR.
[85] Ibid., n.d. Buildings and Appurtenances and Properties representing the Accommodation Requirements Northwest Highway System, Whitehorse, Y.T. Schedule A to Appendix A.

[86] NAC RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, D. M. Johnson, political III, External Affairs, memo to file, 6 Aug. 1947, with encl telegram, A. R. Kilgour, to Canadian Embassy, Washington, 6 Aug. 1947.

[87] *Maintenance and Construction on the Alaska Highway by the Corps of Royal Canadian Engineers. A History of the Northwest Highway Maintenance Establishment, Northwest Highway System.* typescript, no author, no date.

[88] Forest Pearson, GLL, 5 April 1999, based upon a comparison of historic air photos.

[89] Ryder, 11 March 1999.

[90] Lloyd Ryder, 11 March 1999.

[91] DIAND, Whitehorse, Dept. of Renewable Resources, "Preliminary Plan of Survey of Part A, Lot 12, Group 804."

[92] DIAND, Whitehorse, Renewable Resources Division, "Certified to be a true copy of a Meeting of the Committee of the Privy Council, approved by His Excellency, the Governor General, 12th May 1960."

[93] Legal Surveys, Ottawa. 9 April 1952, letter to C.K. LeCapelain, Chief, Lands Division, Dept. of Resources & Development from B.W. Waugh, Surveyor General.

[94] DIAND, Whitehorse, Renewable Resources Division, Whitehorse, Box 13 – old BYN Co. Records. 11 Jan. 1954, C.K. LeCapelain, Ottawa, to C. J. Rogers, President, WP&YR.

[95] CLSR Plan 42155. Plan of subdivision of Lots 10 and 11, Group 5; and Lot 263, Group 804; including Parcel A, Lot 263; Parcel A, Lot 11; Parcel A, Lot 12. Surveyed by J. B. Walcot, DLS, 5 November 1952, recorded by Surveyor General 26 October 1954.

[96] DIAND, Whitehorse, Minute of a Meeting of the Committee of the Privy Council, 12th May 1960.

[97] NAC, RG 25, External Affairs, Vol. 6754, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol Project), disposition of Canol Project, part 8.1, 1957-58, C. J. Rogers, president WP&YR, Seattle, to R.G. Robertson, DM, Northern Affairs and National Resources, 19 Feb. 1958, encl. George S. Wright, Chief, Real Estate Division, Corps of Engineers, Anchorage to Rogers, 12 Feb. 1958 and Rogers to Wright, 17 Feb. 1958.

[98] DIAND, Whitehorse, Renewable Resources Division, Box 13 – old BYN Co. Records.

[99] Ibid. 9 December 1949, G.E.B. Sinclair, Chief, Lands Division, DMR, to W.M. Emery, Dominion Land Agt., Whitehorse.

[100] Lloyd Ryder, 11 March 1999.

[101] Renewable Resources files. Preliminary Plan of Survey of Parcel A in Lot 12, Group 804, prepared by H.B. Walcot, D.L.S., 1950.

[102] Lloyd Ryder, telephone conversation, 29 April 1999.

[103] Ibid.

[104] CLSR Plan 67585. Plan and field notes of survey, Block 298, City of Whitehorse, Yukon Territory. Surveyed August 1980, recorded 7 May 1981. LTO # 62457. Title 83Y334.

[105] Proposal to reconcile regulatory process of contaminated sites regulation and special waste regulations for petroleum hydrocarbon in water, as prepared by the Water Quality Regulatory Task Group of the BCMELP, Nov. 16, 1998.

[106] DIAND, Whitehorse, Renewable Resources Division, Ref. # 163492 – grant by HMQ to BYRCo. of an easement to operate and maintain an oil pipeline along, across and under land in the Yukon Territory. (Lot 263 etc. in Group 804. Dated – Nov. 15, 1960; Recorded - Nov. 15, 1960)

[107] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, W. M. Emery, crown timber and lands agent, lands and development branch, Mines and Resources, Whitehorse, to J. E. Gibben, Controller, Yukon Territory, Dawson, 10 Feb. 1948. RG24, NATIONAL DEFENCE, Acc 1983-84/167, Box 7048, File S-2-530-2, Canol Projects, 1951-1963, M. H. Wereshof, for Under Secretary of State for External Affairs, Ottawa, to DM, DND, 6 Dec. 1951.

[108] NA, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, F. H. R. Jackson, Forest Engineer, Whitehorse, to R. A. Gibson, Director, Lands, Parks and Forests Branch, Mines and Resources, 1 Mar. 1948.

[109] *Whitehorse Star*, 3 April 1958, "Ceremony brief for pipeline."

[110] NAC, RG24, National Defence, Acc 1983-84/167, Box 7048, File S-2-530-2, Canol Projects, 1951-1963, Cunningham for R. G. Robertson, DM, Northern Affairs and National Resources, Ottawa, to F. R. Miller, DM, DND, 15 Apr. 1958.

[111] DIAND, Whitehorse, Renewable Resources Division. 25 October 1960, W. Friesen, Vice President, The White Pass and Yukon Corporation Limited, to F.J.G. Cunningham, Ass't. Deputy Minister, Department of Northern Affairs and National Resources; P.C. 1979-568, 1 March 1968; Minute of a meeting of the Committee of the Privy Council, approved by His Excellency the Governor General, 24 July 1968; James D. Piers, solicitor, WP&YR, to Director, Property & Commercial Law Section, Dept. of Justice, 3 March 1975; undated [ca. late 1970s], unattributed briefing note, "Disposition of Canol Pipeline No. 2;" G.W. Bryan, summary notes entitled "Transfer to British Yukon Railway, Lands and Rights of Way, Canol Pipeline #2."

[112] *Whitehorse Star*, 3 April 1958 - "Freak accident kills man;" 29 May 1958 – "Jurymen ask tar pit goes."

[113] RCMP Coroner's Inquest Report, 13 May 1958. Copy available in Renewable Resources files.

[114] NAC, RG25, External Affairs, Vol. 3395, file 463-N-40C, Facilities for obtaining fuel for United States Army-Air Corps in Canada and Alaska (Canol project), disposition of Canol Project, parts 4 and 5, 1945-49, ? B. Sinclair, Acting Director, Lands, Parks and Forest Branch, Mines and Resources, Ottawa, to A. R. Kilgour, 3rd Political Division, External Affairs, 15 Aug. 1947.

Marwell Industrial Area – Historical Research Project

Appendices:

1. Chronology – White Pass and Yukon Corporation Limited
2. Notes from Lloyd Ryder Interview
3. Bibliography

Appendix 1: CHRONOLOGY - WHITE PASS and YUKON CORPORATION LIMITED

- compiled by H. Dobrowolsky of Midnight Arts, & Christopher Andreae of Historica Research Ltd., February 1997.
- additions contributed by Robert J. Burns, Heritage Research Associates Ltd., & Midnight Arts, April 1999.

1894

- Dec. 14, incorporation of the British Columbia Development Association, Limited in London by a group of English capitalists interested in investment prospects in the Canadian west. (Minter, *White Pass: Gateway to the Klondike*, p. 34.)

1896

- the syndicate advanced a small amount of money to Capt. William Moore to cut a rough trail a few miles out of Skagway.

1897

- the syndicate followed this initial development work with the incorporation of two Canadian companies.

8 May 1897

- British Columbia-Yukon Railway Company incorporated in Victoria by the British Columbia Legislative Assembly
  (National Library, Canada, Statutes, 60-61 Vic., C89, an act to incorporate the British Yukon Mining, Trading and Transportation Company, 29 June 1897.
  - gives corporation usual powers to lay out, construct and operate a railway in BC and NWT between Lynn Canal and Selkirk and can obtain land under the provisions of the Railway Act.)

29 June 1897

- act to incorporate the British Yukon Mining, Trading and Transportation Company passed by the Canadian Parliament. The section of track was presumably under a Dominion Charter due to the fact that a territorial government had not yet been organized. (Minter, p. 65; *Statutory History of the Steam and Electric Railways of Canada*)
- The two companies were incorporated to build a railroad from the summit of White Pass to the trading post of Selkirk on the Yukon River. "The absence of enabling legislation providing for railroads in Alaska prevented the syndicated from obtaining a right of way between Skagway and the summit." (Bennett, p. 37).

1898

March

- Close Brothers, an English financial house, appropriated the assets of the British Columbia Development Association, including the two railroad charters. (Bennett, *Yukon Transportation: A History*, p. 38)
- White Pass and Yukon Railway Company organized in Great Britain; acquired the capital stock of the British Yukon Mining, Trading and Transportation Company. (*Statutory History of the Steam and Electric Railways of Canada*)

29 March 1898
- Close Brothers obtained a West Virginia charter to build a railway between Skagway and the summit of the White Pass. (Bennett, p. 38)

30 July 1898
- The White Pass and Yukon Route, a general transportation company was organized by Close Brothers of London on 30 July 1898. (Bennett, p. 155)

Note: The White Pass and Yukon Route was not a corporate entity, but rather four local operating companies: one American and three Canadian. The U.S. company, the Pacific and Arctic Railway and Navigation Company was incorporated under the laws of the state of Virginia. The three component Canadian companies were the British Columbia-Yukon Railway Company, the British Yukon Mining, Trading and Transportation Company (later the British Yukon Railway Company) and the British Yukon Navigation Company. Until 1951, these four companies were subsidiaries of a parent English holding company, the White Pass and Yukon Railway Company Ltd. [Yukon Archives: White Pass and Yukon Route Corporate Records, acc. no. 82/451; also Bennett, p. 155 quoting: R. Dorman, *A Statutory History of Steam and Electric Railways of Canada* (Ottawa: King's Printer, 1941)].

1899

October – completion of survey of the new townsite of Whitehorse, commissioned by the British Yukon Mining, Trading and Transportation Company.

1900
- 1899 survey recorded by Surveyor General in Ottawa and listed as Plan 8406.
- name of British Yukon Mining, Trading and Transportation Company changed to the British Yukon Railway Company. (National Library, Canada, Statutes, 63-41 Vic., C53, an act respecting the British Yukon Mining, Trading and Transportation Company, 7 July 1900.)

1942
- White Pass and Yukon Railway was leased to the United States government for the duration of the war although this wasn't formally agreed to by the Canadian government until the following year. (NL, Canada Treaty Series (CTS), 1943/3, Exchange of notes, 22 and 23 February 1943, between Canada and the United States of America recording an agreement respecting the White Pass and Yukon Route Railway.)

1943

April - contractors start clearing land for US funded refinery north of Whitehorse.
- U.S. Army starts work on the authorization of an unsigned, undated "Right-of-Entry" to White Pass for Lots 10, 11 and 14.

1944

1 July – Lease 11, for right of way of refinery spur, is signed with federal government. (YA, WP&YR Corporate Records)

1945

10 January - signing of Lease No. 25. Canada, Dept. of Mines and Resources, leases Lots 11, 14 and part of Lot 10 in Whitehorse for five years for "United States Defence Projects in Canada" [Canol refinery] from the British Yukon Railway Company. This property along with associated Crown lands is granted to the U.S. under Permission to Occupy No. 110.

1946

31 July – Lease 25A, sent to White Pass for signature. The lease, an extension of Lease 25, was for a term of five years beginning February 15, 1946.

17 September – Lease 11A, renewal of Lease 11 for right-of-way of refinery spur, is sent to White Pass for signature.

1947

25 February – Dept. of Mines and Resources gives White Pass 30 days notice of cancellation of Lease 25A.

1948

April – White Pass notified of cancellation of Lease 11A for the refinery spur.

1949

- the British Yukon Navigation Co. submits a lease application to build a dock on Lot 12 (REM), Group 804.

1951

- White Pass and Yukon Corporation Limited was incorporated by a Canadian charter; functioned as a holding company to acquire assets of the White Pass and Yukon Railway Company, including the ownership of the British Yukon Railway Company. This new company, incorporated 4 Sept. 1951, acquired entire outstanding capital stock of the four local operating companies on November 1, 1951, on which date it commenced operations.
  [Yukon Archives: White Pass & Yukon Route: Corporate Records accession #82/451]

1958

1 April - Canadian government took over the portion of the Canol No. 2 pipeline facilities located within Canada including the Whitehorse Upper Tank Farm. The Canadian government subsequently leased these facilities to White Pass.

ca. late 1950s/early 1960s

- formation Yukon Pipelines Ltd. This White Pass subsidiary was created to handle the operations of the former Canol No. 2 pipeline including the pipeline between Skagway (?) and Whitehorse, and the upper tank farm in Whitehorse.

1960

29 August – the site of the White Pass Petroleum Depot - Lot 12 (REM), Group 804 – is patented to the British Yukon Railway Company, Patent No. 23773.

1962

- Canada sold Canadian portion of Canol No. 2 pipeline and upper tank farm to White Pass.

1973

- In early 1973 Federal Industries Ltd. started to acquire shares in White Pass and Yukon Corporation Limited; Federal Industries incorporated 1929 as Federal Grain, Limited, in 1972 sold all assets in grain business and invested in industries with an emphasis in transportation and metals, corporate head office in Winnipeg.

[Financial Post Co., *Historical Reports: Federal Industries Ltd., Historical Reports*, 1995]

1976

- Federal Industries Ltd. purchased all of the common shares of the White Pass and Yukon Corporation Limited. *[White Pass & Yukon Annual Report]*

1995

- White Pass Transportation Limited is a holding company of Federal Industries Ltd. and operates truck and rail facilities, distributes and sells petroleum products in Alaska and Yukon, and operates the current tourism operation, the White Pass & Yukon Route Railway. [Financial Post Co.; *Historical Reports: Federal Industries Ltd., Historical Reports*, 24 April 1995]

June - Federal Industries Ltd. changed their corporate name to Russel Metals Inc.

9 June – Lot 12 (REM), Group 804 is transferred to White Pass Transportation Limited, certificate of title #95Y503. On the same date, WPT sold this property to North of 60° Petro Ltd., certificate of title 95Y522.

1996

- Yukon Pipelines Ltd. began dismantling the Canadian portion of the Canol No. 2 pipeline between Fraser and Whitehorse and demolished the upper tank farm. This took place under an abandonment process set out by the National Energy Board in 1996. Pipeline removal continued over the next few years with completion scheduled for 1999.

1997 +

- December, sale of two Russel Metals subsidiaries to Tri-White Corporation Limited of Toronto in a secondary initial public offering. These included Tri-Line Trucking and the White Pass and Yukon Railway. The purchase of the latter also included the historic names: Pacific and Arctic Railway, the British Columbia-Yukon Railway Company, and the British Yukon Railway Company. Assets sold included railway ROW, and associated properties. The railway was renamed the White Pass & Yukon Route Railway and is now divorced from any connection with the original White Pass companies.[1]
- about this time, White Pass Transportation Ltd. was dissolved and a new company formed under the umbrella of Russel Metals, WPT Holdings, to handle remaining White Pass assets in the Yukon. This real estate included the upper tank farm and a parcel at the base of Two Mile Hill. At time of writing, Mike Mickie had taken an option on these and various other White Pass properties.

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[1] Cheryl Sim, former executive assistant, White Pass Transportation Ltd. & WPT Holdings Ltd., personal communication, 18 April 1999 & Gary Hamilton, Golders Associates Ltd., 23 April 1999.

Appendix 2: Lloyd Ryder Interview Notes

Lloyd George Ryder Interview, 3 Tutshi Road, Whitehorse Y1A 3R2
recorded by Helene Dobrowolsky, 11 March 1999; notes prepared by HD, 12 March 1999.
[Additional comments marked in square brackets.]
Reviewed and edited by Mr. Ryder on 18 March 1999.

Side A

tape no.	topic
12	Mr. Ryder was born in Whitehorse in 1922 and attended school here. In 1939, he went to Vancouver for a year to take a course in aviation mechanics.
19	When he came back he went to work for White Pass Airways for a little over a year until White Pass then sold out to Canadian Pacific. Then in 1942, he went to work for the Department of Transport for about a year as a surveyor working on the Whitehorse airport, then the Aishihik airport.
28	LR then bought a truck and started hauling gravel and laying asphalt on the Whse. Airport. After that, he went to work on the Aishihik Road for about six months.
32	LR joined the services in 1944 and was away until 1946 when he came back. "There was a lot of changes that happened right in there and of course one of them is the refinery."
36	The refinery area before the war: "It was all trees. There was no development except for, there was a ranch right along the riverbank just about where the refinery was put later. And that was called Jack French's farm. And I guess he had quite a few horses and things there because the soil was, a lot of nutrients and the mushrooms used to grow real good there. So Bill Drury and I, we used to go down there and pick mushrooms. But there was nothing – from there back into the woods, it was trees." [see also tape # 96]
46	Immediately before the refinery area, there was a slough that cut off that area from the rest of the town. Most of the slough [immediately north of Beaver Lumber] has since been filled in, including some filling this past fall.
49	White Pass had a large fenced-in pasture between the slough and below the shipyards. The fences extended from escarpment right down to the river. "Some of the horses got pretty smart. They would swim out to those islands, right where Kishwoot Bridge is and then, they're above the fence then so they swim back and they were into town. And that would happen to be our horses."
61	If the police caught the loose horses, would have to pay a pound fee of $4 per horse. Tells story of how LR managed to evade fine by pushing away Sgt. Danny Withers and releasing his two horses in the RCMP oatfield.
69	The town dump was where Margaret Jarvis' place was in the Shipyards. "That was there for a long time. They used to keep pushing it out into the river and putting more dirt on top, and more garbage, and more dirt, and I thought that one day we'll have a bridge across to the island. . . The war came along and there was too many people, and they had to find another place to put the dump. So we used to call those islands, 'The Dump Islands'."

82 There was a lot of talk about building a highway eventually, even well before the war. As far as local residents were concerned, the Canol Project happened really suddenly. "No one even realized that the Canol Road was being built. And then all at once - oh, here we go – they're putting a pipe way up in the woods." Within a couple of months, the refinery construction was underway and pipeline was being laid.

96 The French ranch was operating very early. "That was quite a few years before me." Thinks maybe around 1910s. There was one building left there when he was 8 or 10 and used to go down there.

107 Back to the Canol Project. LR thinks that a lot of material for refinery and pipeline might have come up the highway. Material and equipment was also offloaded at Carcross and hauled to Johnson's Crossing. Thinks that probably some of equipment used to build Ak. Hwy. was later used to construct Canol Road. "It was good travelling in the winter. The road was hard and they used to bring some big truckloads of stuff up. They could bring it up the highway where sometimes they couldn't bring it through the tunnel on the White Pass."

128 Most of crew building refinery were American civilians working for the contractor Bechtel-Price-Callahan. "There was probably a lot of locals down there driving truck or anything like this but not too many that weren't working. There were so many other jobs going on at the same time."

140 The refinery construction site was fenced in. They had a guard gate at the bottom of Two Mile Hill (marked on air photo). "You needed a pass to get through there, and once you got in, you needed a pass to get back out."

149 Asked about Joe Sparling's work building tanks. "I didn't hear of Joe Sparling until after the war."

156 LR was away during the time refinery opened and was operated. When he returned in 1946, the refinery was shut down. "I don't think they wanted to move it a hurry. Because it might go to Alaska, or who knew where it would be needed. But then with the big oil strike down in Alberta, they decided that they'll take it down to Edmonton. So that's where it is today."

165 The Marwell Tar Pit – The tar pit was already there in 1946. It had definitely been created as a result of refinery operation. Mentions that it is shrunk quite a bit since then. "At that time, it was still quite liquid. . . If the moonlight was out, you could see and it looked like water. And there was a lot of birds that landed in there and then of course they couldn't get out. They perished there. You couldn't get out there to rescue them either." Mentioned the story of the man who fell in the pit and perished there.

177 LR's theory is that this was the waste area for the refinery. "There could have been a lot of oil when they first started the pipeline that got contaminated with sand and dirt. They probably, they had to get rid of it so they put it in that pit. . . Any kind of waste would be in there, you know, a byproduct that couldn't refine, why it would probably go in that tar pit. . . That would be the waste area."

188 Dismantling the refinery. "I was here then and watched all the action going on. But at that time even yet, you know, there was still a control gate on there. You couldn't go into that area unless you had a good reason to."

197 It took a long time to dismantle the refinery. "It must have taken a good year I think to get what they wanted out of it. And they left a lot – and some of it is still down there today."

210 Thinks the contractor in charge of dismantling the refinery brought in his own crew. The local labour force was pretty limited and there was still lots of other work going on.

215 HD asks if LR knew about possible careless practices when refinery was dismantled, like dumping out tanks on the ground, etc. "No, but it was sort of a natural thing to do. As long as you weren't letting it run right into the river or into the water stream, why it was just – well, let her go."

223 HD & LR discuss casual use of and attitude to oil at the time. "Oh well, it was into the soil, that was good, keep the dust down." Teachers and students used to collect used oil from local garages and White Pass. They then went around and used spray cans to spray it into all the swamps and ponds around town to control the mosquitos. "There was a lot of swamp behind Wood Street there to down as far as Ogilvie Street is. And down through the swimming pond [behind Beaver Lumber]."

239 Canadian Army took over area now known as YTG maintenance yard. "They had their carpentry shops and their plumbing shops, and heavy equipment garage [for]repairs and all that kind of thing. It was industrial – that's how they got Industrial Road I guess.

250 There was an oil pipeline from the tank farm down the hill to the stem at the White Pass bulk plant. There was a branch off this pipeline to the power plant in the army area. "They just put a branch over to the power plant because it was a lot easier to let the oil run into their tanks than it was to haul it with a truck. They'd go over there and sometimes they'd take quite a bit of oil, so the guy operating it – he probably left the valve on and 'oh, oh she's starting to run over.' . .There had to be some spills in that area. At forty below, you're not going to be standing there watching to see how full the tank gets."

264 Asked about handling used oil from trucks and equipment. A lot of that was collected and dumped on the road in the summertime.

273 Talking about the White Pass Petroleum Division. Originally, this was downtown. "Right in front of the Regina Hotel, they had a dispensing place there (on a spur on the river side). They used to dispense gasoline and oil there. They had a spur line there. And they'd bring over their tank cars on the train. And the reason the spur was there, they filled gas barrels down on the dock to load on the barges and that to take to Dawson. So there was a lot of diesel and gasoline. It was put in the barrels from there and on to the boat."

290 HD asked about the barge[s?] that had a big tank in the hull. LR confirmed this was also used. LR started an oil delivery business, Ryder's Fuel Service, in 1948. More people were starting to heat their homes with fuel oil. White Pass was LR's fuel supplier. "I'm pretty sure that the first couple of loads I got, I got from the dispenser at the Regina Hotel. But then they had already moved down to the refinery area and that's where we used to get filled up."

309 When White Pass giving out oil at the Regina, their fuel all came over the train in tank cars – not the pipeline.

316 HD asks how fuel was delivered to the refinery area. "The gasoline came on the train. About that time already they were fixing up the pipeline breaks, running alongside the track. There's a good

fire hazard. They'd stop pumping gasoline in the pipe, so just straight oil, stove oil and diesel oil."
Previously they had run gasoline as well. "They'd run gasoline for a week or two, and then they'd run diesel oil. And of course there's another thing they did, they had to clean that stuff out of the line before they put the gasoline through. So they had to have a place where they used to dump that. And then they used to burn a lot of it at the airport, you know, like for fire practice and things."

334 LR states that there must have been a fuel dump at the airport because that was where the [Skagway to Whse.] pipeline terminated. Another line ran from the Upper Tank Farm down to the bulk plant. LR thinks that this pipeline into town was reactivated in 1948 or 1949. That was how they used to fill the sphere tanks. "Of course they were all not stove oil or diesel, they were for gasoline as well. And I think it's still the same today."

355 HD asks about the White Pass dock on the bulk plant site. It was a good natural docking site. "They wouldn't have to have much of a dock there, because the bank was quite steep, and they could push the barge right in there and tie it, and fill the barrels and stuff right there. . . They just had a few piles and a ramp . . . to run the fuel lines and things to the boat. It wasn't much of a dock there."
[The train tracks came along the docking area and they used the ramp to run hoses from the tanker cars to steamers and barges. Mr. Ryder reminded me that for a few years a couple of sternwheelers used oil for fuel.]

385 Did WP build anything else on the site? "Well they built a couple of sheds down there to store oil and antifreezes and stuff, that you didn't buy in bulk, you got it in cans. And another shed they used to steam barrels, cause they had to clean these dirty barrels before they put fresh fuel in them. Not too much other building going on down there. It was mostly there from the oil refinery."

401 LR has no knowledge of any transactions between White Pass and the army for obtaining the storage tanks. "That was their business."

411 Asking about arrangements for transferring fuel onto barges. "Oh I think they filled a lot of the barrels right on the barge. . .They were set up that way."

423 There was a stem a little way up from the riverbank that was used to supply fuel to LR and other drivers. There was a loading pipeline with hoses right by the riverbank used just for the boats.

431 LR believes the likelihood of spillage when loading fuel on the boats was minimal. "There was a guy there with a nozzle. It only took a couple of minutes to fill a barrel. Then he had to go to another barrel to another barrel to another barrel. . . The spillage would be [minimal],"

445 LR indicates the location of the stem on the map.

End of Side A

Side B

tape no. **topic**

8 LR showing where the stem and loading pipeline were on the 1994 aerial photo map of site. "This would be about the end of the railroad right here. And then that dock would be along here. And then that was their shed that they used to make out the invoices and things. . . And then the road come around here like this and there was a stem where we used to get the fuel, it would be right in there. And then they had a pipeline over on the bank for to fill the barrels and things for the boat. (note: copy portion of map to put with notes)

23 The two stems are marked as numbers one and two.

28 LR describes exactly what a stem is. There was an upright pipe [about 20 feet high], a valve and the horizontal stem pipe that would swing around on a swivel to load the barrels [or trucks]. [Mentioned there are still some stems visible in Marwell area.]

45 White Pass has their own trucking service for delivering fuel to Dawson, Mayo, and Watson. Petroleum Division operations staff numbered about 12 and there were about another 12 working in administration.

62 The long green turquoise building on site was built ca. the 1970s to house oil and grease and other products.

68 The present site of Petrocan was developed by British American Oil in the 1950s. Joe Sparling worked on building those storage tanks.

75 Talking about activities in Industrial Area in 1950s. ICG propane started ca. late 1950s. General Enterprises used to be located over by Tourist Services and didn't move out to area until 1960s or 1970s. Whenever the Canadian Army moved out, the Yukon government took over their site along Quartz Road. This was a gradual process. "I think Territorial Government sort of moved in, they took up some and then the Army would still be there."

99 HD asked whether this area was ever formally designated an industrial area. LR stated that this had been happening gradually over the years.

111 The barrel reconditioning plant. "They inspected them there. If they were no good, then they threw them away. If they were good, then they had to take them and wash them." This happened in area right by the riverbank. "There was no sign of any water [pond], it just soaked away in the gravel. The oil with it, or gas, or whatever."

124 East side of road is still used mostly for maintenance. There are also some storage areas there.

134 Asked tar pit in the postwar period. Doesn't know about any postwar use of the pit by either the army or local businesses.

141 Asked about early cleanup efforts in the early '60s. "They tried to burn it and it wouldn't burn. And then they tried to fill it, and they can't fill it, because it just keeps coming up. And there was no point in draining it, because where are you going to drain it to?"

150 Looking at photos. "There's hot spots all over the place." Talking about buried oil tank found underneath the front door of Elvin's Equipment [a former business at the top of Two Mile Hill now occupied by Wajax]. Mentions another tank found in front of Kanoe People "on the main road."

165 HD talks about how the tape will be used. One copy will go to the client, Renewable Resources, and another to the interviewee. LR stated he didn't want a copy. The master copy usually goes to Yukon Archives. Conditions can be placed by the interviewee on access to the tape.

End of Side B

Notes from conversation with Mr. Ryder, 18 March 1999:
The Marwell Industrial area was named after a large firm, Marwell Construction Co., that built several large projects here in the 1950s including the first Robert Campbell Bridge, the Taku, now the Bonanza, Hotel, and he thinks Whitehorse Elementary School. Their barracks and cookhouse were located by what is now the Finning Yard, on either side of Calcite Road.

Mr. Ryder mentioned filling the 300-gallon tank outside the Marwell cookhouse one time in the 1950s. The next day he got a call that the tank was empty. The tank had shifted on its foundation rupturing the line into the building and a full tank of heating fuel drained into the ground. The cookhouse was on the north side of Calcite Road and marked by an X on attached map.

Apparently the company's head foreman, Bob Warner, went on to be one of the founding partners of General Enterprises.

Also mentioned to LR stories I'd heard of tanker trucks dumping the remainder of their loads on the ground when they were changing types of fuel. He confirmed that this was a common practice.

29 April 1999, notes from telephone conversation.
Asked Mr. Ryder to clarify how gasoline was handled at the bulk plant site. He stated that gasoline was transported to the site by tanker cars on the railway, then piped over to the spherical tanks.

Also asked if there was ever any ore handling on the site. The answer was no but Mr. Ryder stated that ore containers from the trucks travelling from Faro may have been steam-cleaned by the barrel reconditioning pond. He theorized that this may have been done before any welding work on the containers.

Appendix 3: Marwell Research Project – Bibliography

Marwell Research Project: Bibliography

- compiled by H. Dobrowolsky, Midnight Arts (Yukon sources),
& Robert J. Burns, Heritage Research Associates (Ottawa sources).
April 1999.

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Plan of yards and right of way of the BYMT&T Co.s railway and adjacent property on the west bank of Lewes or Fiftymile River below Whse. Rapids, Group 5, Yukon District. October 28,1899. Surveyed by H. G. Dickson. 8 Feb. 1900, Approved & confirmed at Dept. of the Interior, Surveyor General's Office.

CLSR Plan 40189
Lot 263, Group 804, CLSR Plan #40189, LTO # 20322. Surveyed by H. C. Bingham, D.T.S., 9 October 1944. Recorded by Surveyor General, 12 Feb. 1945.

Index to Plans of Survey of the City of Whitehorse, Yukon Territory. Composite Plan, 8 July 1954.

CLSR Plan 42155
Plan of subdivision of Lots 10 and 11, Group 5; and Lot 263, Group 804; including Parcel A, Lot 263; Parcel A, Lot 11; Parcel A, Lot 12. Surveyed by J. B. Walcot, DLS, 5 November 1952, recorded by Surveyor General 26 October 1954.

CLSR Plan 51400
Transient Area Subdivision. Lots 53, 120, Lot 263 and other Crown land. Surveyed Aug. – Sept. 1962, recorded 14 February 1963.

CLSR Plan 57529
Lot 10-A-1. Surveyed July 1971, recorded 30 May 1972. LTO # 35787.

CLSR Plan 57737
Parcel A-2, Lot 11. Recorded 18 October 1972; surveyed August 1972. LTO # 36883.

CLSR Plan 63040
Railway ROW through Crown lands, Lots 9, 21, Parcel B Lot 10, Parcels A &B Lot 12 and Lot 14. Surveyed by T.E. Koepke, DLS during period July 7, 1976 and March 11, 1977. Recorded 23 Sept. 1977. LTO # 49874.

CLSR Plan 67585
Plan and field notes of survey, Block 298, City of Whitehorse, Yukon Territory. Surveyed August 1980, recorded 7 May 1981. LTO # 62457.

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Lot 50 & Drainage ROW, Lot 263-1 and part of Lots 263-2. LTO 63728. Surveyed March 27 – May 14, 1981. Recorded 7 October 1981. LTO # 63728.

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NL, Revised Statutes, 1985, c. Y-2, Yukon Act.

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NL, Canada Treaty Series (CTS), 1942/24, Exchange of notes, 14 and 15 August 1942, between Canada and the United States of America for the establishment of an oil supply line from Skagway to Whitehorse.

NL, Canada Treaty Series (CTS), 1943/2, Exchange of notes, 27 January 1943, between Canada and the United States of America constituting an agreement regarding the post-war disposition of defence projects and installations constructed in Canada by the government of the United States.

NL, Canada Treaty Series (CTS), 1943/3, Exchange of notes, 22 and 23 February 1943, between Canada and the United States of America recording an agreement respecting the White Pass and Yukon Route Railway.

NL, Canada Treaty Series (CTS), 1944/35, Exchange of notes, 22 November and 20 December, 1944, between Canada and the United States of America constituting an agreement concerning the post-war disposition of United States defence projects in Canada.

NL, Canada Treaty Series (CTS), 1946/41, Supplementary exchange of notes, 7 November and 30 December 1946, between Canada and the United States of America regarding the disposal of the Canol project, effective 1 March 1947.

NL, Canada Treaty Series (CTS), 1960/10, Petroleum Canol Project, exchange of notes, 31 March 1960, between Canada and the United States of America.

YUKON ARCHIVES (Whitehorse)

Corporate Records

WHITE PASS & YUKON ROUTE
Series VI: Land Records [1899-1952]

VI-1-B. Schedule of Patents for Whitehorse Lots. COR 813
copied list of patents for lots 10-16.

VI-3 Defence Project Leases, 1942-48 COR 817

Folder 1. Record of Defence Project Leases: Nos. 1-30, 1943-48.
Two Sheet document entitled: Record of Whitehorse Property Leased to Canadian Government.*

Lease No.	*Tract No.*	*Description*	*Date Commencement*	*Yrly Rental Fee*	*Bill Issued*	*Cancellation Date*
25	none	Refinery	July 1, 1944	$1.00	1944, 1945	3-25-47
11	15	Railway spur to refinery, 14 ft. wide Lots 7,8,9,10, 11, 12,14	July 1, 1944	$1.00	1944, 1945	none given

Government Records

(note: see also separate listing of records from the National Archives of Canada.)

Canada

1942 Treaty series, 1942 no. 43; exchange of notes between Canada and the United States of America constituting an agreement for the construction of a pipeline and a refinery in the Yukon Territory/Canada. Ottawa: King's Printer, 29 June 1942. YA Pam 1942-29

Canada. NWMP
1899 *North-West Mounted Police Annual Report*, "Report of Superintendent Z. T. Wood, Commanding 'H' Division."

Canada. NWMP
1900 *North-West Mounted Police Annual Report*, "Report of Superintendent P.C.H. Primrose, Commanding 'H' Division."

Canada & Yukon
1996 *Yukon State of the Environment Report, 1995*. Published by Environment Canada & Yukon, Dept. of Renewable Resources.

Royal Canadian Engineers
n.d. *Maintenance and Construction on the Alaska Highway by the Corps of Royal Canadian Engineers. A History of the Northwest Highway Maintenance Establishment, Northwest Highway System*. typescript, no author, no date.

YRG I or RG 91: Yukon – Commissioner's Records

Series 1-A, vol. 7, no. 466Bi, ii. GOV 1613
Land acquisitions by U.S. for Defence Projects - General Correspondence, 1943-46.

Series 1-A, vol. 7, no. 466Ci, ii. GOV 1613
Land acquisitions by U.S. for Defence Projects, 1943-47.

Series 1-A, vol. 7, no. 466Ei. GOV 1613
Land acquisitions by U.S. authorities for Defence Projects, 1943-45.

Series 1-A, vol. 7, no. 466Eii. GOV 1613
Land Acquisitions by U.S. Authorities for Defense Projects re: Refinery Site - Whitehorse, 1943-45.

Series 1-A, vol. 7, no. 466F. GOV 1613
Land acquisitions by U.S. authorities for Defence Projects re: British Yukon Railway Co. (White Pass),

Series I-A, No. vol. 8, f. 466J GOV 1614
Surplus Defence Project Buildings (Alaska Highway), 1945-46.

Series 1, vol. 31, f. 16184 GOV 1641
J. E. French et al. 40 acres near Whitehorse, 1905-1911.

Series 1, vol. 48, f. 30485 GOV 1658
Correspondence file, Indian Reserve, Whitehorse, 1916-1919.

Series 1, vol. 70, f. 25 GOV 1680
Townsite of Whitehorse, additions, 1947-48.

Series 5, vol. 8, f. 580 GOV 1954
French & Goodell & E. A. Dixon – Application for land at Whitehorse, 1905-1912.

Series 8, vol. 3A, File 1, TS 8 GOV 2073
Blueprint of Whitehorse airport, inspection reports for Alaska Highway, blueprint of terminal facilities at McRae, correspondence re: land use by U.S. Armed Forces and various small plans in Whitehorse area. 1943-44.

Municipal Records – City of Whitehorse

MRG I, Series IX, f. 3. GOV 2766
City of Whitehorse, Marwell area. 1982-85.

MRG I, Series IX, f. 6. GOV 1100
City of Whitehorse. City Boundaries.

United States

1943 *Canol Project Report 1, May – December 1942.* [note: Cover stamped : Restricted; H. D. Collier.] War Dept. Corps of Engineers [and] Bechtel-Price-Callahan. Edmonton: Bechtel-Price-Callahan, 1943.
YA 388.1 USCE

Canada & U.S. Government Records on Microfilm at Yukon Archives*			
M/F #	**Name**	**Description**	**# Reels**
76	Canada. National Defence (probably not useful)	RG 24. Northwest Command HQ, Yukon – RCAF Stations & Staging Units, 1942-45	5
77	Canada. Privy Council Office	RG 2 – Register & Index, 1895-1988; Minutes & Index, 1900-1924; War Cabinet Committee & Index, 1939-1945.	20
78	Canada. Privy Council Office	RG 2 – Cabinet Conclusions, 1944-1951	6
72	Mackenzie-King, W.L.	King Papers – Prime Minister, 1921-26, 1926-1930, 1935-1945.	10
40*	U. S. Army. Northwest RG 388	Alaska Highway and Canol Records - limited FA in binder for Federal Gov't records, under Other Governments.	17

Note: As M/F #s 72,77 & 78 are incomplete, we left the decision whether to research these records, to Heritage Research Associates who were examining Canadian government records at National Archives in Ottawa. See NAC listing at beginning of this document.

Maps

H-299 Plan of yards and right of way of the BYMT&T Co.s railway and adjacent property on the west bank of Lewes or Fiftymile River below Whse. Rapids, Group 5, Yukon District. October 28,1899. Surveyed by H. G. Dickson.

H-518 Canol Project, 1943. Sheet 1-3 (A-C), Right-of-Way Detail, 4" pipeline, Skagway, Ak. to Whitehorse, Yk.

H-520 Alaska Highway, Whitehorse, SW. 1943. (Shows pipeline ROW and military camps in Whse., pre-refinery).

H-523 Whitehorse airport, 1943. Includes airport and all defence installations between McCrae and McIntyre and Radio Range transmitter sites on Range Rd. In the refinery area only shows the roads. Refers to Takhini area as "Canol Town." Very good information but fragile and extremely large.

H-585 Plan of Whse. Indian Reserve being lot 226, Group 5, Y.T. Signed by S. Bray, Chief Surveyor, Dept. of Indian Affairs. Lot is approx. 320 acres, includes WP lots 15 & 16.

H-909 Proximity Map. Location of property sites used for military and construction purposes, Whse. 22 Feb. 1944. get copy from Forest.

H-910 Proximity Map. Property for Oil Storage Facilities, Alaska Highway Petroleum Division, Whse. Yukon. 10 Feb. 1944.

H-916 Alaska Highway, Whse. June 1944. Federal Works Agency, Public Roads Administration. From: YRG I, Series 1-A, vol. 7, no. 466Ci, GOV 1613.

H-917 Tract map. Areas used by NWSC for storage and for pumping installations. April 13, 1944. From: YRG I, Series 1-A, vol. 7, no. 466Ci, GOV 1613.

H-999 Sketch of certain parcels of land in Group 5, Yukon Territory, to accompany application for same by J. E. French & A. D. Goodell. From: YRG I, Series 1, vol. 31, f. 16184.

F-134 Map of Whitehorse on Lewes River; major features include Ak. Hwy., Airport, Upper Tank Farm, Refinery, 2 Mile Road, and WP&YR Railroad. ca. 1950. small, ordered 4 copies.

Newspapers

Whitehorse Star
1944
29 April – "Public Invited to Attend Dedication Ceremony at Local Oil Refinery."
5 May – "Dedicated to All Associated with Canol Project – Official Opening Canol Refinery in Whitehorse;" & Editorial: "The Canol Refinery"
12 May – "U.S. Government to Discontinue Emergency Oil Program States Minister of Resources."
Untitled item: "Instead of pouring oil on troubled waters it is being sprayed upon the streets in Whitehorse in order to abate the dust nuisance."
16 June - "Whitehorse residents petition Ottawa for public utilities."
27 October – "U.S. handsome contribution toward Yukon development."

1945:
11 May - Two thousand people take part in V- E Day celebration here.
6 July – "Imperial Oil Opens Service Stations on Alaska Highway"

1947:
29 August - "Removal Local Oil Refinery to Edmonton Now Under Way"

1958:
April 3 - "Freak accident kills man."
April 3 – "Ceremony brief for pipeline."
May 29 – "Jurymen ask tar pit goes."

1989: 17 July - Metcalfe, Rhoda. "Oil Oozing from pit raises worries;" 25 July, Editorial – "Stopping the Flow."

1991: 23 May – "Siddon takes first-hand look at past environmental sins."

1999: 25 March – "10,000 litres of fuel spill."

Yukon News
1991: 1 May – Lesniak, Peter. "North focus of major cleanup effort."

Photographs

* = print of this view was ordered.

Historic Photographs - Catalogued

4357 View of the refinery buildings, storage tanks, etc. in Whitehorse taken from northeast. [c. 1945] S. MacPherson photographer & collection.

Historic Photographs - Uncatalogued

81/21. Finnie, Richard S. Canol Photos: 1942-44.

PHO 140

new / old #s

24/24B-5 "Whitehorse airport and town, 12 June 1942." *

25/24B-6. "Whitehorse airport and town, 12 June 1942." *

30 /25B-12. "Whitehorse waterfront with sternwheelers and fuel drums. 12 June 1942."

PHO 141

424. /263-7 "The Canol refinery under construction in what is now the Industrial section of Whitehorse alongside the Yukon River, 1 Sept. 1943." *

425/264-1 "Assembling of steel work for crude-oil furnace at Whitehorse refinery site, 1 Sept. 1943." *

426/264-2 "Power plant foundation. Three turbo generator pads in place and six boiler foundations (right). Carpenters are preparing forms for operating floor slab. 1 September 1943." *

435/277-9 "Canol Whitehorse refinery in an advanced stage of construction, 4 October 1943."*

453/301-4 "The Canol refinery viewed from the bench back of town, 29 October 1943. It was then in a nearly-completed state, along with storage tanks. The principal contractor for this was Bechtel of San Francisco. In 1947, after having served for only a year during World War II, the refinery was bought for a million dollars by Imperial Oil Company, dismantled and trucked to Edmonton. some observers believed that this refinery, which cost the Yukon nothing, might have been used profitably in peacetime where built."*

454/301-5 "Whitehorse Canol refinery: crude furnace and stack, with stripper, fractionator and vacuum columns in foreground, 4 January 1944."*

455/301-6 "Power house with thermal cracker in background, showing luminousity of metal-clad insulation on the columns. Whitehorse Canol refinery, 29 October 1943."*

456/301-7 "Whitehorse Canol refinery: caustic treatment building, with alkylation unit under construction and piping trench in foreground. 29 October 1943."*

590/ 85-3 "Tank site #2, three inch fine sand grading done by hand."*
(Think this is probably the Hillcrest tank farm but I am including these and some of the Shulist photos to show details of tank installation. HD)

PHO 142

668/ 139-2 "BPC camp (near Indian cemetery), seen from edge of bluff."

672/139-11 "Trucks filling up with gas at Whitehorse tank farm." (*chk dates) F

673/140-2 "Welding pipe tying in tanks at Whitehorse tank farm."*

674/140-5 "Tank No. 4 (note frost showing that tank is full)." F15/43?

675/140-9 "J. P. Lanius and B. S. Field tightening bolts on floor of tank #10."*

676/140-11 "Floor of tank #10."

710 /147-4 "Tank workers hoisting steel plate to top of #10 tank. 19 February 1943."*

715/147-6 " Steel plate being laid on top of #10 tank."

Finnie, Richard S. CANOL. San Francisco, Ryder & Ingram, 1945.
The following 3 images were reproduced from the book:
p. 168. Construction of the power house.
p. 170 Welder at work on top of storage tank.
p. 171. Pounding out dents inside storage tanks.

80/44, Kamloops Museum & Archives. ca. 1940s. PHO 128
2. View of refinery under construction.
5. "Standard Oil Co. Refinery, Whitehorse, Y. T." View of refinery taken from river. *
no # - Another (or same) view of refinery from river.
no # - same view as 2.
no # - a rather blurry view of refinery area.
no # - "This is the Refinery of the Standard Oil Co. and was the first to close down in the Whitehorse Area. Mar. 10/45. Taken from West hill."*
82/403, Misc. II PHO 50
folder 10, Canol
#s 1, 6, 11, & 12 are a general view of refinery and 3 shots of refinery opening.
Early colour snaps, badly yellowed. - ordered two shots.

83/88 Sparling, Gudrun. 1923-1947.
- does not include any shots of refinery area.

Shulist, Brownie coll.
Note: Most of these photos don't have captions or those with captions don't have dates.
Includes several photos of dismantling of the refinery area, ca. 1947/48.
PHO 266
31., 41, 55, 58, 59, 70, 71*, 75, 86*, 91, 93*, 94, 95*, 98*.
PHO 267
175, 176, 191.

Publications

Bennett, Gordon
1978 *Yukon Transportation: A History.* Ottawa, Indian and Northern Affairs, Parks Canada.

Cohen, Stan
1992 *Alcan and Canol: A Pictorial History of Two Great World War II Construction Projects.* Missoula, Montana: Pictorial Histories Publishing Co. Inc.

Diubaldo, Richard J.*
1977 "The Canol Project" in *American-Canadian Relations*, pp. 179-195.
YA Pam 1977-117

Finnie, Richard S.
1945 CANOL, The sub-Arctic Pipeline and Refinery Project constructed by Bechtel-Price-Callahan for the Corps of Engineers, United States Army, 1942-44. San Francisco, Ryder & Ingram. YA 971.902 Fin O/S

Gage, S. R.
1990 *A Walk on the Canol Road.* Oakville, Ontario: Mosaic Press.

Minter, Roy.
1987 *White Pass: Gateway to the Klondike.* Toronto, McClelland and Stewart.

Storm, Robert W.
1987 An inventory of records of the work of the U. S. Army Corps of Engineers on Alcan and Canol during World War II. Prepared for the Office of History, OCE, under contract DACW 31-85-A-0277, 9 January 1987. Washington, D.C.: Office of History, OCE. Ref 388.1 Storm 1987

Zaslow, Morris
1988 *The Northward Expansion of Canada.* Toronto: McClelland and Stewart.

MARWELL HISTORICAL RESEARCH PROJECT

1946 Site Map

LEGEND

- Refinery Buildings
- POL Tanks
- Roads
- Railway
- Containment Dykes
- Piping Trenches & Possible Piping
- Refinery Property Line
- River/Ponds
- Legal Surveys (1998 Cadastral)
- Easments (1998 Cadastral)

Refinery Buildings

1	Crude Distillation Unit
2	Thermal Cracking/Reforming
3	Gas Concentration
4	Isomerization
5	Alkylation
6	Caustic Treating
7	Ethyl Blending
8	Power house
9	Oil/Water Separator
10	Office
11	Water Intake
12	Rock Crusher
13	Blow Down
14	Contractors Camp (B.P.C.)
15	Pump House
16	Lab
17	Office
18	Fire
19	Warehouses
20	Shop & Garage

Aerial photography from A10557-112, National Air Photo Libaray, 1946.
Photo not corrected for distortion.

Scale 1:6,000

50 0 50 100 200 300 metres

1 centimetre = 60 metres

Gartner Lee Limited

Midnight Arts
Research & Writing

MARWELL HISTORICAL RESEARCH PROJECT

1952 Site Map

LEGEND

- Former Refinery Buildings
- Former POL Tanks
- Railway
- Refinery Property Line
- River/Ponds
- Legal Surveys (1998 Cadastral)
- Easments (1998 Cadastral)

Refinery Buildings

1	Crude Distilation Unit
2	Thermal Cracking/Reforming
3	Gas Concentration
4	Isomerization
5	Alkylation
6	Caustic Treating
7	Ethyl Blending
8	Power house
9	Oil/Water Separator
10	Office
11	Water Intake
12	Rock Crusher
13	Blow Down
14	Contractors Camp (B.P.C.)
15	Pump House
16	Lab
17	Office
18	Fire
19	Warehouses
20	Shop & Garage

Aerial photography from A13476-191, National Air Photo Libaray, 1952.
Photo not corrected for distortion.

Scale 1:6,000

50 0 50 100 200 300 metres

1 centimetre = 60 metres

Gartner Lee Limited

Midnight Arts Research & Writing

Drawn By: F. Pearson
GLL Project No.: 99-709
Date: 05.03.99
Rev No.: 1b

MARWELL HISTORICAL RESEARCH PROJECT

1963 Site Map

LEGEND

- Former Refinery Buildings
- Former POL Tanks
- Railway
- Refinery Property Line
- River/Ponds
- Legal Surveys (1998 Cadastral)
- Easments (1998 Cadastral)

Refinery Buildings

1	Crude Distilation Unit
2	Thermal Cracking/Reforming
3	Gas Concentration
4	Isomerization
5	Alkylation
6	Caustic Treating
7	Ethyl Blending
8	Power house
9	Oil/Water Separator
10	Office
11	Water Intake
12	Rock Crusher
13	Blow Down
14	Contractors Camp (B.P.C.)
15	Pump House
16	Lab
17	Office
18	Fire
19	Warehouses
20	Shop & Garage

Aerial photography from A18097-77, National Air Photo Libaray, 1963.
Photo not corrected for distortion.

Scale 1:6,000

50 0 50 100 200 300 metres

1 centimetre = 60 metres

Gartner Lee Limited

Midnight Arts
Research & Writing

Drawn By: F. Pearson
GLL Project No.: 99-709
Date: 05.03.99
Ver. No.: 1b

MARWELL HISTORICAL RESEARCH PROJECT

1994 Site Map

LEGEND

- Former Refinery Buildings
- Former POL Tanks
- Abandoned Railway
- Refinery Property Line
- River/Ponds
- Legal Surveys (1998 Cadastral)
- Easments (1998 Cadastral)

Refinery Buildings

1	Crude Distilation Unit
2	Thermal Cracking/Reforming
3	Gas Concentration
4	Isomerization
5	Alkylation
6	Caustic Treating
7	Ethyl Blending
8	Power house
9	Oil/Water Separator
10	Office
11	Water Intake
12	Rock Crusher
13	Blow Down
14	Contractors Camp (B.P.C.)
15	Pump House
16	Lab
17	Office
18	Fire
19	Warehouses
20	Shop & Garage

Aerial photography from City of Whitehorse Digital Orthophoto, 1994, Trialthalon Mapping Corporation.

Scale 1:6,000

50 0 50 100 200 300 metres

1 centimetre = 60 metres

Gartner Lee Limited

Midnight Arts Research & Writing