

STATE OF ALASKA

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**DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM**

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Re: No Further Remedial Action Determination
Former Wards Cove Packing Facility and Former Chevron Fuel Facility 1001425
Database ID Number 1987130111101

The Alaska Department of Environmental Conservation (ADEC) has reviewed historic file information and reports received by Chevron and Wards Cove consultants. The latest reports include the November 3, 2004, SLR final report on the steam shack area cleanup and groundwater monitoring, and the March 18, 2005, soil sampling summary for the upper bulk fuels facility loading rack submitted by Chevron's consultant, SAIC. This letter presents ADEC's decision regarding site closure under 18 AAC 75.380.

Site Setting and History

The Wards Cove Packing property is located on Klawock Inlet¹ adjacent to the Craig commercial/retail district. The property was used as a fish cannery starting in the early 1920s. Columbia Wards Fisheries, a joint venture of Castle and Cooke and Wards Cove Packing, purchased the property from Libby McNeil in 1959. Wards Cove Packing acquired full ownership interest in 1988.

¹ Historic file information refers to Klawock Inlet as Bucareli Bay.

Primary infrastructure at one time included the bulk fuels facility, a fish processing plant, and a boat maintenance and storage facility that included wooden boat ways and a "steam donkey" winch house.

The upper yard consisted of seven above ground bulk fuel storage tanks, a pump house, a truck-trailer loading rack, above-ground piping, and a pipeline corridor that extended to a boat fueling dock. The bulk fuels facility was constructed by Standard Oil of California, a corporate predecessor of Chevron, in the 1930s. It was operated by Chevron until 1986 when it was purchased by Ingram Oil. White Pass Alaska purchased Ingram Oil's assets in 1987. The City of Craig issued a building permit to White Pass for construction of three 26,000 gallon tanks and two 12,000 gallon fuel tanks at the old tank farm. The tanks were installed between July, 1991 and February, 1992. Harbor Enterprises (d.b.a. Petro Marine) purchased the facility from White Pass in 1995 and operated it until 1999. The tanks were demolished in November or December of 1999. Some scrap metal and cut tanks were given away to local residents for reuse. The remaining debris was either recycled or taken to the local landfill.

The lower yard was comprised primarily of structures associated with the fishing industry. A bulk fuels truck trailer loading rack serving the Chevron facility was once located near the intersection of Third and Water Streets in an area currently used for parking.

The site subsurface is reported to consist of poorly graded gravel and sand. The site slopes to the north from the former tank farm to Klawock Inlet. Groundwater flow follows site topography at about 2'-8 feet below grade.

Investigation Chronology

Numerous site investigations were conducted over 17 years by various consulting firms representing Chevron and Wards Cove. Soil and groundwater contamination within the tank farm area was first discovered in early 1987. In April 1987, Chevron notified ADEC that a small pocket of gasoline existed in the tank farm yard.

A bioventing system and groundwater monitoring wells were installed in 1988 by Chevron consultant Rittenhouse-Zeman & Associates (RZA). RZA subsequently installed a passive dewatering trench and treatment system. Groundwater collected in a french drain was directed into the groundwater treatment system, which consisted of an oil/water separator and an air-stripping unit. Treated water was discharged to the ground surface approximately 80 feet north of the tank farm.

January 1990 sampling indicated that benzene exceeded acceptable levels in three groundwater monitoring wells; however, data collected between August 1988 and April 1990 indicated a significant decrease in groundwater contamination.

July 1991 correspondence from America North, Chevron's new consultant, indicated that upgraded bioventing piping would be installed. The letter also stated that White Pass, the current facility operator, was planning to expand the product storage capacity at the terminal with four new above-ground tanks.

ADEC approved the March 1992 request by Chevron to discontinue operation of the vapor extraction system. Chevron was requested to continue to operate the french drain and air stripper and perform semi-annual groundwater monitoring. Active groundwater treatment was discontinued in 1993 by White Pass due to high electricity costs.

AIG Consultants conducted an environmental risk assessment survey in June 1994 on behalf of Wards Cove Packing. AIG observed significant hydrocarbon staining on the soil and surface water associated with a spring located hydraulically down gradient of the tank farm area. AIG also observed petroleum-contaminated water leaking from hoses associated with the inactive air stripper unit.

Wards Cove contracted with AGRA Earth and Environmental (AGRA) to perform a baseline environmental study in 1995. AGRA's June 1996 report concluded that petroleum impacted soil persisted on site, water from the inactive air stripper system represented a potentially significant contaminant migration pathway, and that additional groundwater investigation was warranted. AGRA also noted stressed vegetation at the base of each above ground tank.

AIG conducted comprehensive sampling in 1997 on behalf of Wards Cove. Benzene, gasoline range organics (GRO) and diesel range organics (DRO) were identified above acceptable levels at the former tank farm. Based on sampling results, AIG recommended that contaminated soil be excavated following tank farm demolition activities.

Petroleum sheen on Klawock Inlet was reported to ADEC in September 1997. In March 1998, ADEC requested that Wards Cove take steps to address the problem. Cambria, a Chevron consultant, stated in April 1998 correspondence that it was unlikely the former tank farm operations caused the sheen. The August 1998 Cambria groundwater sampling report documented diesel in groundwater near Klawock Inlet in exceedance of 18 AAC 75.345 Table C levels. The report stated that petroleum sheen had been traced upwind and under the Petro Marine dock.

Cambria's April 9, 1998 field activities and bioremediation monitoring report concluded that high concentrations of petroleum hydrocarbons were present in soil and groundwater in the two above ground storage tank containment areas and extending approximately 100 feet down slope.

Delta/RRM's July 1999 groundwater sampling showed a continuing decreasing trend in dissolved hydrocarbons associated with the Chevron bulk fuels facility. However, elevated concentrations of DRO above Table C cleanup levels were still present in several monitoring.

wells. These included MW-1 and MW-7 within the tank farm footprint, and MW-12, located 40 feet north and down gradient of the tank farm footprint. RRM abandoned the remaining wells in the vicinity of the tank farm, including MW-1 and MW-7. Monitoring well MW-5 was found damaged and was repaired. The tank farm wells were destroyed on October 2, 1999, presumably in conjunction with facility demolition.

Several developments occurred in 2000 that expanded the scope of the Wards Cove property investigation. AIG's Darryl Snow verbally informed ADEC in September 2000 that petroleum contamination had been discovered at the above ground heating oil tank complex located adjacent to the access road. ADEC gave conceptual authorization to apply the approved alternative petroleum cleanup levels to this site, with the requirement that better technical documentation would be provided to ADEC by Wards Cove. Mr. Snow also informed ADEC that a resident had been hired to monitor the petroleum sheen in the bay over the past year, and that sheen was no longer present.

Delta/RRM investigated shallow soil in the intertidal boat ways during the September 2000 cleanup. Lead concentrations were detected above the 400 mg/kg residential cleanup level. Delta/RRM also investigated tidal area sediments and the product line area during the September 2000 cleanup. No contaminants of potential concern were noted.

Five new monitoring wells (MW-14 through MW-17 and MW-22) were installed by Delta/RRM in the former tank farm area, and four new wells (MW-18 through MW-21) were installed in the lower yard. Five probes were also installed by Delta/RRM near the high tide line to demonstrate compliance with surface water quality standards under 18 AAC 70. A sixth probe, TP-6, was installed by Delta/RRM near the high tide line under Ruth Ann's Restaurant a few weeks later to determine if contaminants from the former truck trailer loading rack located in the lower yard had migrated in that direction.

Groundwater monitoring was conducted by Delta/RRM quarterly from September-October 2000 through March 2001. Total aqueous hydrocarbons were above Water Quality Standards in TP-6. DRO and RRO concentrations exceeded cleanup levels in MW-12 and MW-18. Lead concentrations in most monitoring wells exceeded cleanup levels.

The May 2002 Soil Remediation and Site Assessment Report submitted by Delta/RRM indicated that elevated concentrations of lead and limited petroleum contamination still present in soil and groundwater in the vicinity of the boat ways were probably due to historic boat maintenance operations. Petroleum contamination in the vicinity of the steam donkey shack was also shown to be problematic. Although tidal probe TP-6 showed elevated polycyclic aromatic hydrocarbons (PAHs), Delta/RRM concluded the source was probably an old, recently removed heating oil tank that was located above Ruth Ann's Restaurant deck.

As a result of Delta/RRM's findings, ADEC requested additional work at the site in March 26, 2002 correspondence addressed to Chevron and Wards Cove. ADEC staff met on-site with Chevron, Chevron's consultant RRM, and Wards Cove's consultant AIG in August 2002. ADEC postponed additional groundwater monitoring until AIG completed its investigatory work the following summer. ADEC staff also indicated that the applicability of using the "10 x rule" under 18 AAC 75.345 would be explored.

AIG and SLR International implemented the additional work on behalf of Wards Cove in July 2003. Soil samples were collected from the lower yard and western property boundary for lead analysis and soil remediation was completed at the heating oil tank area. Confirmation soil samples collected from the three lower yard excavations and the one western property boundary excavation indicated concentrations of lead below the 400 mg/kg cleanup level.

At the heating oil tank farm, AIG/SLR excavated approximately 5 cubic yards of petroleum impacted soil and collected side wall and bottom confirmation soil samples. Laboratory analysis of the sidewall and bottom confirmation soil samples indicated no concentrations of PAHs exceeding Table B1, Method Two cleanup levels for ingestion or migration to groundwater pathways.

DRO and RRO soil and groundwater samples were collected in the vicinity of the steam shack. Groundwater within the sampling trenches contained sheen, and in one area (almost adjacent to well MW-12) free product began entering the trench. The product appeared to enter from the north embankment adjacent to the steam shack. AIG and SLR also installed two new wells on the property in 2003 (MW-23 and 24) to establish background lead concentrations in groundwater. The first well was installed at the westerly edge of the property in the area of previously recorded elevated lead levels. The second well was installed at the easterly edge of the property, just up gradient of the former upper loading rack. Groundwater samples were collected from the two new wells and from monitoring wells that had been previously installed. Monitoring well MW-12, located near the northeast corner of the steam shack, was not sampled due to a thick sheen on the water indicating the presence of free product.

Groundwater sampling was conducted by AIG and SLR International in conjunction with the 2004 steam donkey shack cleanup. One well, MW-18, yielded a DRO concentration of 4.72 mg/L, which exceeded the 1.5 mg/L Table C cleanup level but was below 10-times Table C. MW-18 was sampled prior to soil excavation because of its proximity to the steam donkey shack. Both MW-18 and MW-12 were abandoned during the cleanup due to the size of the excavation footprint. Historical groundwater data for the wells located in the vicinity of the steam shack (MW-11, MW-12, MW-13, and MW-18) indicated DRO contamination was limited to the area immediately adjacent to the steam shack. Soil removal actions by AIG and SLR in July 2004 removed the bulk of the source material contributing to groundwater impact at well MW-12. Lead was detected in several wells below the Table C cleanup level during the 2004 groundwater sampling event.

During field activities conducted in July 2003, AIG and SLR staff noted petroleum hydrocarbon odors while installing the background monitoring well in the former upper loading rack area. Chevron consultant SAIC investigated this potential problem during the summer of 2004 at ADEC's request. Two soil test pits were advanced to 6-7 feet below ground surface. Samples were analyzed for BTEX, GRO, DRO and RRO. Low DRO and RRO concentrations were detected below 18 AAC 75.342 Table B2 migration to groundwater cleanup levels. GRO and BTEX were not detected in either sample.

Cleanup Levels

Cleanup levels were approved by ADEC on August 4, 2000. Site-specific soil cleanup levels for petroleum were calculated under 18 AAC 75.340 (e) (2) based on total organic carbon samples collected from different depths at each of nine boring locations across the site.

<u>Contaminant</u>	<u>Soil Cleanup Level (mg/kg)</u>	<u>Pathway or Controlling Category</u>
Benzene	0.0683	Migration to groundwater
Toluene	36.8	Migration to groundwater
Ethylbenzene	49.5	Migration to groundwater
Total xylenes	81	Inhalation (capped at saturation)
GRO	1,400	Maximum allowable
DRO	3,560	Migration to groundwater
RRO	8,300	Ingestion

SLR soil boring logs were compared to RRM soil boring logs across the site to determine if the site-specific soil cleanup levels for the primary tank farm were applicable to the Wards Cove heating oil tank complex, also called the secondary tank farm. The two background wells installed by SLR (MW-23 near the west end of Wards cove complex and MW-24 located in the former upper loading rack area) indicate very similar soil (gravelly sand), the differences being that organic topsoil was encountered near the surface in MW-23 and crushed rock was found at the surface in MW-24. RRM logs from wells in the steam shack area also indicate similar coarse grained sands and gravels at depth, with organic soil at the surface. No significant differences in undisturbed subsurface conditions across the site appear to exist. Calculated site-specific cleanup levels are therefore applicable to the entire site.

All other soil contaminants of potential concern were required to meet 18 AAC 75.341 Table B1 levels. Groundwater cleanup levels were required to meet levels specified in 18 AAC 75.345 Table C. Surface water was required to meet Alaska Water Quality Standards for total aqueous and total aromatic hydrocarbons (15 and 10 micrograms per liter respectively). ADEC established a surface water point of compliance at the high tide line in 2002.

In February 2003, AIG requested application of 10 times the Table C groundwater cleanup level under 18 AAC 75.345 (b) (2). ADEC approved the request in March 2003 based on a groundwater use determination made in accordance with 18 AAC 75.350.

Groundwater Use Determination

Jon Bolling, City of Craig Planner, informed ADEC in October 2002 that: 1) the city's municipal water source is located at North Fork Lake, approximately ten air miles from the Wards Cove property; 2) all water users in Craig are connected to the municipal water system; 3) there are no ground water users in the city limits, or in close proximity to the Wards Cove property; 4) future users of the Wards Cove property will be required to connect to the municipal water system for their water needs; and 5) no on-site water systems would be permitted.

Under 18 AAC 75.350, ADEC has determined that groundwater at the site:

1. is not currently used for a private or public drinking water source, is not within the zone of contribution of an active private or public drinking water system, and is not within a recharge area for a private or public drinking water well, a wellhead protection area, or a sole source aquifer;
2. is not a reasonably expected future source of drinking water, and:
3. will not be transported to any groundwater source that is a current or reasonably expected potential future source of drinking water.

Cleanup Summary

Delta/RRM began remediation activities at the bulk fuel facility in September 2000 under contract with Chevron. Approximately 2,100 tons of petroleum-contaminated soil were excavated from the site of the original tank farm and transported to the South Coast asphalt manufacturing facility located at the Shaan Seet quarry on Port St. Nicholas Road. Additional excavation of contaminated soil from two areas of the upper yard occurred as a result of confirmation sampling results. Prior to completion of backfilling with clean rock, the defunct treatment system was demolished and removed.

Eleven empty 55-gallon drums, old timbers and approximately 75 tons of petroleum contaminated soil were excavated from a drum pit located northeast of the steam shack. The soil was transported to the South Coast facility. The empty drums and old timbers were taken to the Klawock landfill.

An additional 110 tons of petroleum-impacted soil were excavated from the lower truck trailer loading rack located in the parking area south of Ruth Ann's Restaurant. This material was taken to the South Coast facility.

The excavated soils from the three source areas were mixed with approximately 9,000 tons of clean rock to produce a base rock for later asphalt production. The material was later used for local paving projects.

Dewatering was performed in two excavations during the September 2000 Delta/RRM cleanup. Approximately 1,000 gallons of water from the drum pit excavation, and 9,000 gallons from the tank farm excavation were pumped and treated on-site. The treatment system consisted of a 5,000 gallon temporary mobile storage tank and two granular activated carbon vessels. Treated water was discharged to the ground surface under an ADEC wastewater general permit.

AIG/SLR conducted limited cleanup activities in July 2003 in conjunction with its site assessment work. PAH-impacted soil was excavated from the site of the Wards Cove heating oil tank complex. Approximately 5 cubic yards were excavated and stockpiled on a plastic liner on an adjacent asphalt area. Impacted soil from the heating oil tank complex was later combined with soil excavated from the Steam Shack area (July 2004) and transported to the Rabanco Roosevelt Regional Landfill facility in south central Washington.

A 1 cubic yard area was excavated at each of the three previous locations where RRM had found elevated lead. The soil was stockpiled on plastic on the asphalt area near the heating oil tank complex. Soil samples collected from the stockpile for the purpose of waste characterization indicated the soil was non-hazardous and the stockpile was transported (in July 2004) to the Klawock landfill for use as daily cover. Creosote treated wood debris from the boat ways was taken to the City of Craig landfill burn pile at the same time. AIG/SLR International conducted cleanup at the location of the former steam donkey shack in August 2004. Approximately 235 tons of petroleum-contaminated soil were excavated and temporarily stockpiled on-site. Excavation de-watering was not needed due to the unusually dry summer. The soil was then transported by barge to the Rabanco facility in the State of Washington. Additionally, wood debris totaling approximately 10 tons was transported to the City of Craig's burn site located on Port St. Nicholas Road.

Residual Contamination Above Cleanup Levels

A small volume of inaccessible soil that likely contains petroleum concentrations above cleanup levels remains in the southwest portion of the steam donkey shack excavation. This residual soil contamination exists as scattered pockets or thin layers above the clay layer.

Petroleum contamination and lead were documented in groundwater slightly above Table C cleanup levels in the vicinity of the steam donkey shack prior to source removal. Residual groundwater contamination, if it still exists, is minimal and will stabilize and attenuate quickly now that the source has been removed.

Cumulative Human Health Risk

For contamination that remains on-site above cleanup levels, a chemical that is detected at one-tenth or more of the Table B1 inhalation or ingestion values set out in 18 AAC 75.341(c), the Table B2 values set out in 18 AAC 75.341(d) or the Table C values set out in 18 AAC 75.345 must be included when calculating cumulative risk under 18 AAC 75.325(g). A number of specific indicator chemicals, such as benzene and PAH compounds, are used to determine cumulative risk from petroleum contamination. Petroleum fractions (gasoline-, diesel- and residual range hydrocarbons), which may consist of hundreds of individual chemicals, are not considered in cumulative risk calculations.

A number of petroleum indicator contaminants remain at various locations above the one-tenth screening level. The calculated cumulative cancer risk, 0.00006, is greater than ADEC's cancer risk threshold of 0.00001. However, this calculation is based on the results of judgmental sampling at targeted source areas and use maximum concentrations left on-site. The calculated cumulative risk number therefore overestimates true cumulative risk, possibly by orders of magnitude. A more accurate cumulative risk estimate would be based on potential human exposure across the entire site and would use average contaminant concentrations rather than maximum detected concentrations. This information is not available.

Ecological Risks

Laboratory analytical results from intertidal sediment samples were screened against NOAA's reference tables for organic and inorganic compounds. Levels were exceeded for lead and PAH compounds. ADEC does not believe further ecological risk evaluation is merited because: 1) screening concentrations are conservative; 2) the affected area is small and likely poses minimal risk to local fish and wildlife populations; 3) contaminant source areas associated with the site have been cleaned up; 4) there are likely other historical source areas in the vicinity that are not attributable to the site; and 5) surface water quality standards protective of aquatic life have been met at the point of compliance located at the high tide line.

Institutional Controls

As a precautionary measure groundwater wells shall not be installed for drinking water purposes. This control will be managed by the City of Craig through a local ordinance that requires hook-up to the municipal water supply system. Long-term monitoring and reporting is not required. The efficacy of this control will be reviewed by ADEC every five years.

Determination

The investigation and cleanup of the Wards Cove Packing property in Craig has met all requirements specified in 18 AAC 75, Article 3 - Discharge, Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances. No further remedial action is required.

In accordance with 18 AAC 75.380(d)(1), additional investigation and cleanup may be required if new information is discovered which leads ADEC to make a determination that the cleanup

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described in this decision is not protective of human health, safety, and welfare or the environment. If the conditions in this decision are not met, additional requirements may be imposed and/or enforcement action initiated by ADEC.

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 - .340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801 within 15 days of the decision date. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days of the decision date. The right to appeal is waived if a hearing is not requested within 30 days.

William James



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cc: Jon Bolling, City of Craig
Mark Munson