



Making a difference...together

WATER ADVISORY COMMITTEE

Notice of Meeting on **Wednesday, November 5, 2014 @ 9 am**
Goldstream Conference Room, 2nd Floor, 479 Island Highway, Victoria, BC

D. Spinner (Chair)
M. Doehnel
M. Gingras
D. Murdock
F. Schultz

R. Mersereau
E. Dyck
S. Johnson
R. Neuman
B. Wilkes

M. Thompson
P. Elworthy
B. June
J. Rogers
M. Williams

AGENDA

1. Approval of Agenda
2. Adoption of Minutes of September 9, 2014
3. Presentations
 - No one has registered to speak.
4. Chair's Remarks
5. Review of Task/Action Items
6. September 21 Wildfire Event and Wildfire Preparedness (Staff Report #WAC 2014 - 03)
7. Motion Regarding Disaster Planning
8. Results of Budget Discussions for 2015
9. Pricing Conservation Campaign
10. First Nations Representative
11. Leech Watershed Usage – Next Steps
12. Schedule of 2015 Meetings and WAC Nominations Process Given Election Cycle
13. Questions from Committee Members
14. New Business
15. Adjournment

To ensure a quorum is present, please call Margaret at 250.474.9606 if you or your alternate cannot attend.



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MINUTES OF A MEETING OF THE WATER ADVISORY COMMITTEE
Held Tuesday, September 9, 2014 at 1 pm in the Goldstream Conference Room,
479 Island Highway, Victoria, BC

PRESENT: M. Doehnel, E. Dyck, P. Elworthy, Y. Pratt (for M. Gingras), R. Machin, B. June, R. Mersereau (1:05 pm), D. Spinner, M. Thompson, B. Wilkes, R. Neuman, M. Williams
Staff: M. Montague (Recorder)

ABSENT: D. Murdock, J. Rogers, F. Schultz

The meeting was called to order at 1 pm. The Chair introduced R. Machin, who will be replacing Y. Pratt as the DND representative.

1. APPROVAL OF AGENDA

MOVED by Y. Pratt and **SECONDED** by B. Wilkes,
that the Water Advisory Committee approve the agenda as presented.

CARRIED

2. ADOPTION OF MINUTES OF MAY 7, 2014

MOVED by Y. Pratt and **SECONDED** by B. Wilkes,
that the Water Advisory Committee adopt the minutes of the meeting held May 7, 2014.

CARRIED

R. Mersereau joined the meeting.

3. PRESENTATIONS

- There were no presentations.

4. CHAIR'S REMARKS

The Chair remarked as follows:

- He noted that election season may have an impact on discussions held at the Water Advisory Committee.
- He noted that Agenda Items #8 may be a part of the discussion at the October working group meeting.
- Discussion on the task list and how to structure subcommittees will continue at the next working group meeting.

5. REVIEW OF TASK/ACTION ITEMS

An updated task/action list is attached.

6. INTRODUCTION OF HAILEY DALE, IWS COMMUNICATIONS COORDINATOR

T. Robbins introduced Hailey Dale, the new IWS Communications Coordinator. He noted that Hailey has a number of responsibilities at IWS including producing regular communication pieces, assisting with communicating on emergency issues, and getting information out to media and residents.

7. UPDATE ON LEECH WATERSHED ACCESS

T. Robbins reported on the Leech watershed access and security, and discussions held with First Nations.

8. 2014/2015 REGIONAL WATER SUPPLY BUDGET UPDATE

T. Robbins provided an update on the projections for 2014 and the budget highlights for 2014. This information will be reviewed by the Regional Water Supply Commission Budget Subcommittee on September 17. They will then forward a recommendation to the Regional Water Supply Commission in October.

T. Robbins and H. Dale left the meeting.

9. NEW DISCUSSION ON DEVELOPING A CLIMATE CHANGE RELATED "DISASTER PLAN" FOR THE WATERSHEDS

MOVED by M. Williams and **SECONDED** by B. Wilkes, that the Water Advisory Committee recommend that the Regional Water Supply Commission give consideration to funding a study into disaster planning for both the Leech and Sooke Lake Water Supply Area considering near, medium and long term risks, including climate change.

CARRIED
unanimously

D. Spinner, R. Mersereau and M. Thompson will develop a rationale for the motion.

B. Wilkes left the meeting.

10. GROUND WATER POTENTIAL IN THE CRD

M. Thompson reported that he was interested in getting more information regarding ground water potential in the CRD. He noted that, as staff will be presenting a report to the Committee, no action will be taken on this item at this time.

11. QUESTIONS FROM COMMITTEE MEMBERS

There were no further questions from committee members.

12. NEW BUSINESS

Y. Pratt reported that the Charters River Salmon Interpretive Centre has a display on the history of the Sooke Flowline. This event runs until the end of September.

11. ADJOURNMENT

The meeting adjourned at 2:45 pm.

**WATER ADVISORY COMMITTEE
TASK LIST**

	TASK	ACTION	STATUS
1.	Food sustainability and water. Write a letter to PAC groups in the region requesting information on what they are doing with respect to the relationship between water and food sustainability.	M. Doehnel/B. Wilkes <i>To be discussed at the October Working Group meeting</i>	Look at the food sustainability section of the RSS
2.	Presentation on disaster planning – staff report with technical report	T. Robbins	2015
3.	Presentation on jurisdictional issues including perspectives from both DND and First Nations	M. Gingras	TBD
4.	Multiple uses in the watershed	M. Thompson	A follow up meeting to be scheduled with S. Hallatt

**REPORT TO WATER ADVISORY COMMITTEE
MEETING OF WEDNESDAY, NOVEMBER 5, 2014**

SUBJECT SEPTEMBER 21 WILDFIRE EVENT AND WILDFIRE PREPAREDNESS

ISSUE

On the morning of Sunday September 21, 2014 a wildfire was detected within the Sooke watershed of the Greater Victoria Water Supply Area (GVWSA). A multi-agency response effectively suppressed the fire within 8 hours and provided a valuable opportunity to put to the test the department's wildfire preparedness plans, equipment, training, and procedures. A debrief of the wildfire event found minor areas for improvement in safety, communications and procedures, but otherwise concluded preparedness and response was appropriate, timely and effective.

BACKGROUND

Location

The wildfire was located in the northeastern portion of the Sooke Water Supply Area (within the catchment area of Sooke Lake Reservoir) approximately 1 km west of residences in the Shawnigan area and 3 km from Sooke Lake Reservoir (Attachment 1 map). The wildfire was located within closed forest cover however, was within 15 m of the cleared Sahtlam Pike high voltage bulk transmission corridor (500 kV). Evidence in the immediate area suggests the fire was caused by illegal hunting activities. The fire was contained within 0.1 ha or approximately 30 m x 30 m.

The proximity to the transmission line and corridor was of significant concern in terms of the opportunity for the wildfire to spread rapidly and extensively given the dry, volatile fuels (Scotch broom) in the corridor; and for the possibility of the heat and smoke from an expanded fire affecting the bulk transmission line's service to the Greater Victoria Area.



Wildfire location in forest adjacent to Sahtlam Pike high voltage transmission line, also showing Scotch broom in the corridor.

Response

CRD

Twelve CRD Integrated Water Services (IWS) staff were involved in the Sunday wildfire response in the following roles: 3 – two person patrol crews, the watershed emergency duty officer, the watershed fire warden, and an additional 4 staff called in from standby as truck drivers, pump operator and crew leader. Monitoring, mop up and re-outfitting activities were continued on Monday and Tuesday to complete the response.

Wildfire Management Branch – Provincial Ministry of Forests, Lands and Natural Resource Operations

Five Wildfire Management Branch (WMB) staff including an Incident Commander and a four-person wildfire initial attack crew responded to the fire. CRD and WMB staff followed a unified incident command structure each providing an incident commander, with CRD crews and equipment providing logistics, water and pumps, and WMB staff providing danger tree assessment and removal, trail brushing and water delivery.

BC Hydro

Two BC Hydro staff attended the site to assess the vulnerability of the Sahtlam Pike transmission line but were satisfied that there was no immediate threat.

Neighbouring Private Landholder

A staff member of the adjacent privately held forest land visited the site to confirm the location of the wildfire as within CRD land and not a concern to their adjacent holdings.

Please see the Wildfire Incident Report (Attachment 2) for further details on the wildfire and response.

Costs

The total CRD cost of the response to the wildfire, excluding debrief participation and reporting, is \$13,400. The table below provides a breakdown of CRD costs by date and activity:

Date	Activity	Cost
Sept 21	Response	\$7,478
Sept 22	Mop Up/Refit	\$4,503
Sept 23	Demob/Cleanup	\$1,419
TOTAL		\$13,400

Wildfire Management Branch costs are covered by WMB under the joint Wildfire Response Agreement, provided the CRD did not cause or contribute to the wildfire due to acts or omissions. Under the terms of the agreement, WMB will use best efforts to protect CRD lands under the agreement for an annual fee. The fee is based on a cost per hectare for the area to be protected and considers the level of wildfire preparedness (equipment and trained staff) that the CRD also provides. The fee for the GVWSA for 2014 was \$7,575.

DISCUSSION

On September 21, given an anticipated wildfire danger rating of high¹ in the Sooke WSA, the following resources were dedicated for wildfire protection (also see Attachment 3 - Wildfire Preparedness Daily Status):

Resource	Number	Role/Detail
Ground patrols	3	Two person patrols spread over daylight hours
Air patrol	2	10:30 and 15:00
Standby	1	watershed emergency duty officer (wedo)
Standby	1	fire warden
Standby	4	truck driver, fire fighters, heavy equipment operator
Water tenders	4	total of 19,600 L available
Skidder with tank	1	1,600 L available

The resources planned for wildfire preparedness on September 21 were sufficient to detect (air patrol with location confirmed by ground patrol), organize (WEDO and fire warden) and control (patrol and standby crew with WMB crew and 2 water tenders) the wildfire within 8 hours, as well as to continue patrol (ground and air) duties in the remainder of the area.

Existing agreements (Wildfire Response Agreement with WMB), plans and procedures (2014 Wildfire Preparedness Plan, IWS Emergency Response Procedures) and training provided sufficient resources for staff to adequately and safely manage the wildfire response. Work beginning in 2014 to provide select staff with additional training and exposure to WMB wildfires on southern Vancouver Island should continue to ensure a well-trained and experienced initial attack capability in the department.

The wildfire provided several challenges and opportunities for learning:

1. The nearby high voltage transmission line added to the values at risk, posed additional safety concerns, and created a multi-jurisdictional event.
2. An opportunity to work with WMB in a unified command structure. The response to the last wildfire with WMB in 2008 was not established as joint command.
3. A challenge and opportunity for less experienced staff members to participate in wildfire response within all incident positions.
4. An opportunity to collect relevant forest fuel and wildfire behaviour data to better inform existing fire behaviour models.

Detailed recommendations to improve existing procedures are found in Attachment 2 – Wildfire Incident Report.

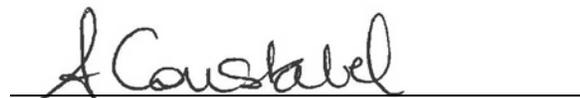
CONCLUSION

The small wildfire of September 21, 2014 provided an excellent opportunity for IWS staff to test and put into practice the equipment, training, plans and procedures for wildfire preparedness in the GVWSA. The results suggest that the IWS Department continues to plan and prepare appropriately for rapid initial attack as well as working effectively with Wildfire Management Branch to plan and prepare for larger and longer wildfire situations. Efforts currently underway to provide staff with exposure to more and larger wildfires with WMB should be supported and continued.

¹ The actual fire danger recorded on Sunday Sept. 21 at 1300 was extreme. Weekend fire danger levels are predicted and preparedness planned based on Friday's rating and predicted weather forecasts. Preparedness levels and activities are also at the discretion of the Manager, Wildfire, Security & Emergency Response based on the range of fire danger conditions in the 3 water supply areas, additional weather and operational factors.

RECOMMENDATION

That the Water Advisory Committee receive the staff report for information.



Annette Constabel, MSc, RPF
Senior Manager, Watershed Protection

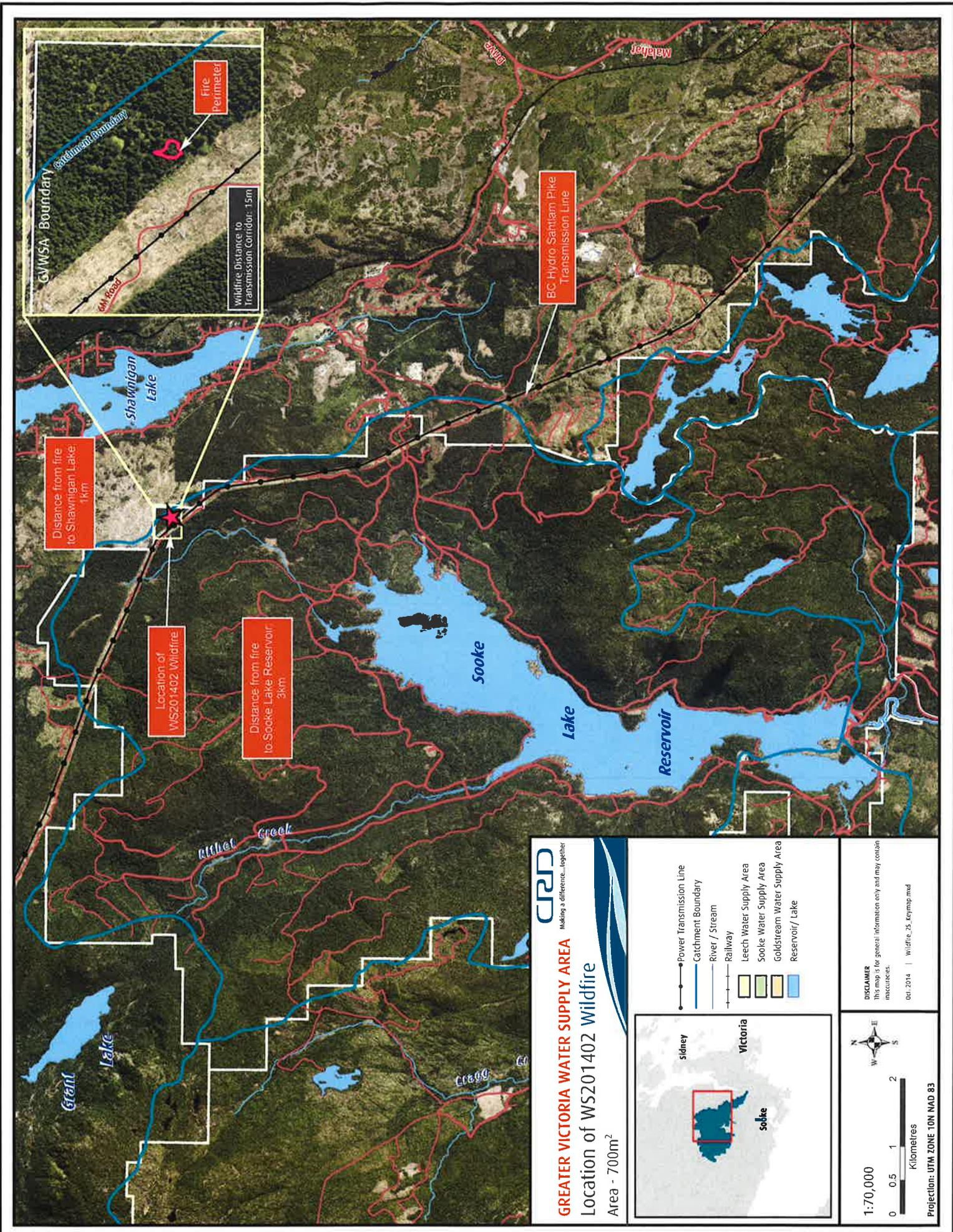


Ted Robbins, BSc, CTech
General Manager, Integrated Water Services
Concurrence

AC:mm

Attachments:

1. Map – Wildfire Location WS201402
2. Wildfire Incident Report – Sept. 21, 2014
3. Wildfire Preparedness Daily Status – Sept. 21, 2014



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GREATER VICTORIA WATER SUPPLY AREA
Location of WS201402 Wildfire
 Area - 700m²

Legend

- Power Transmission Line
- Catchment Boundary
- River / Stream
- Railway
- Leech Water Supply Area
- Sooke Water Supply Area
- Goldstream Water Supply Area
- Reservoir / Lake

Inset Map: Shows the location of the study area within the Greater Victoria region, highlighting the areas of Sidney, Victoria, and Sooke.

Scale: 1:70,000

0 0.5 1 2 Kilometres

North Arrow: N, S, E, W

Projection: UTM_ZONE 10N NAD 83

DISCLAIMER: This map is for general information only and may contain inaccuracies.

Oct. 2014 | Wildfire_25_Keymap.mxd

Inset Map: Shows the wildfire location (red star) relative to the GVWSA Boundary and the 15m Wildfire Distance to Transmission Corridor.

GVWSA Boundary

Wildfire Distance to Transmission Corridor: 15m

Fire Perimeter

Distance from fire to Shawigan Lake: 1km

Location of WS201402 Wildfire

Distance from fire to Sooke Lake Reservoir: 3km

BC Hydro Sahlisam Pike Transmission Line

Grant Lake

Shawigan Lake

Sooke Lake Reservoir

Sooke Lake Reservoir

Allet Creek

Crease Creek

Blaine

Malahat



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Water Services Department
Watershed Protection Division
Incident Report

To: Annette Constabel, Senior Manager, Watershed Protection

From: Rob Walker, Manager, Watershed Security and Emergency Response

Subject: **Wildfire Incident Report – September 21, 2014**

Date: October 24, 2014

File: WP Operations File – Event Reports – 2014

Routing: ___ Senior Manager ___ Ops File

1. INTRODUCTION

On Sunday, September 21, 2014, a wildfire (CRD Fire Number WS201402, BC Fire Number V60558), on CRD owned lands adjacent to the Sahtlam Pike transmission line within the north-eastern portion of the Greater Victoria Water Supply Area (GVWSA), was reported by a contract Victoria Flying Club aerial patrol - a map indicating the location of the fire is included as Attachment 1.

Personnel from the Coastal Fire Centre - Cobble Hill Fire Base and the CRD responded to the fire. The cause of the fire is undetermined but likely human-caused and related to illegal hunting in the area. Significant evidence of illegal entry and hunting was previously known in the area and new evidence was found subsequent to the fire incident.

For each appropriate section of this incident report, potential areas of improvement raised during the After Action Review held on September 30, 2014 are listed. The length or content of the lists should not be taken as a strong criticism of the management of the incident. It is critical to learn from each incident and to share ideas for the improvement of our operations no matter how well we manage our incidents.

2. WEATHER CONDITIONS

The most relevant fire weather data for the fire location is from the North Basin Fire Weather Station. On September 21, 2014, the Fire Danger Class was rated as Extreme which followed a rating of Extreme on Saturday and High on Friday. There had been no significant precipitation since September 3 when 9.4mm had fallen. Since September 3, only 1.5mm had fallen at the North Basin Fire Weather Station. The antecedent dry summer resulted in a Build Up Index over 150 and a Drought Code of 760 by September 21, high values indicating the potential for extreme fire behaviour. The daily fire weather readings for the North Basin Fire Weather Station from September 20 to 22 are included as Attachment 2.

3. RESPONSE

The fire was initially reported at 0929 to the Coastal Fire Centre by a member of the public. The location was given as west of Shawnigan Lake and considered likely on private forestry lands. Additional public reports were received over the subsequent 20 minutes but the location of the fire was unclear. The Coastal Fire Centre dispatched an Incident Commander, Pader Brach, and an IA crew, Coast Whiskey, at 0947.

At 1020 the CRD contracted Victoria Flying Club aerial patrol reported a smoke plume to CRD ground patrol crews. The exact location reported was still incorrect but there was sufficient information for patrollers to use established vantage points to determine the location.

At 1032 the aerial patrol updated the fire location to a closer general location. By 1126 the coordinates of latitude 48° 36' 26" and longitude -123° 39' 46" were confirmed. CRD Staff arrived on scene at 1124 and provided an Initial Fire Report. At 1155 Coastal Fire Centre staff arrived on scene. A representative from Island Timberlands, who had been contacted by the Coastal Fire Centre, attended the site briefly.

Additional CRD resources were called out from standby at 1115, began to arrive at FOC by 1130 and arrived at the fire at 1210.

BC Hydro staff attended the scene to assess the vulnerability of the Sahtlam Pike transmission corridor infrastructure but were satisfied that there was no direct threat. Finding the appropriate BHydro contact number and staff was problematic and took considerable WEDO effort and time.

Fire suppression by CRD and Coastal Fire Centre staff proceeded as detailed in Section 5. The fire was declared contained at 1430. By 1800 the fire was mopped up and there was no visible smoke.

A four person CRD crew patrolled and mopped up the fire the following day, Monday, September 22, 2014. Several hotspots were mopped up and no smoke has been detected from fire WS201402 since that day.

During the After Action Review held on September 30, 2014, several areas for improvement related to response were raised:

- Coastal Fire Centre Initial Attack Crew was from Sechelt and not familiar with CRD personnel and operations. They could have received a more in-depth briefing on our wildfire culture and capacity.
- Upon arrival at the Sooke Entrance Gate, CRD staff should have ensured a security presence at the gate rather than leaving the gate unlocked while responding to the fire location.
- The late patrol crew could have been given a "heads-up" that they would be assigned to a wildfire once they reported for their shift prior to arriving at FOC.
- Need to ensure WEDO knows location of appropriate contact numbers for BHydro in Emergency Response Procedures.

4. FIRE BEHAVIOUR

CRD staff took photos of the smoke column and fire behaviour upon arrival. These photos are extremely important for determining expected fire behaviour on future wildfires and for validating GVWSA fuel type classification. The smoke column, upon detection by CRD personnel, was typical of a Rank 2 fire – mostly white with some brown, thin with no flames visible (photo 1.)

The fire behaviour observed upon arrival of CRD personnel was consistent with a Rank 2 fire – a low vigour surface fire that can be successfully, directly attacked using hand tools and water (photo 2). Evidence of scorching up to 3 metres was observed throughout the fire. A flame height of 3 metres corresponds to a fire line intensity of approximately 2,800kW/m or a Fire Intensity Rank of 4. Scorch height cannot be interpreted as representing generalized fireline intensity throughout the fire but it may indicate peak intensity as well as the potential for intermittent crown fire had the height to live crown been lower.

There was little wind at the fire site and the observed rate of spread was slow towards the northeast. Significant ground fire had occurred and the fire had burned deeply into organic soil

layers and the locally-abundant surface fuels. Based on the antecedent fire weather, the topography of the fire site and the size of fire at detection, it appears that the fire had been burning for several days before generating a significant-enough smoke column to facilitate detection.



Photo 1. Smoke column.



Photo 2. Fire behaviour.

The forest fuels at the fire site consist of a mature Douglas fir canopy with a height to live canopy of 25m. The understorey is a moderate density mix of western red cedar and Douglas fir with a salal shrub layer. In places where salal is absent, there is a feather moss ground cover. There is considerable surface fuel loading from a mix of downed logs and branches.

The 2007 watershed fuel classification map shows the fire location as being in a C3 fuel type. According to the Canadian Forest Fire Danger Rating System (CFFDRS), C3 represents pure, fully stocked (1000–2000 stems/ha) pine stands that have matured at least to the stage of complete crown closure. The base of live crown is well above the ground. Dead surface fuels are light and scattered. Ground cover is feather moss over a moderately deep (approximately 10 cm), compacted organic layer. A sparse conifer understory may be present.

Fire behaviour predictions were generated with Fire Behaviour Prediction (Behave) software for C3, C5 and M2 (boreal mixed-wood) fuel types. M2 was modeled as it has been commonly used for coastal fuel fire behaviour prediction. More recently, the Coastal Fire Centre has been classifying similar stands as C5. Full fire behaviour prediction runs for the three fuel types are included as attachment 3. The key fire behaviour prediction outputs are included in Table 1.

Table 1. Fire Behaviour Prediction Output

Fire Behaviour Output	C5	C3	M2 (50% conifer)	Observed
Rate of Spread	0.5m/min	1.3m/min	4.2m/min	slow
Headfire Intensity	586.1	1,571kW/m	1,767kW/m	na
Fire Intensity Rank	3	3	3	2 (4)
Fire Type	Surface	Surface	Surface	Surface
Head fire Spread Distance	26.3	521.4m	217.1m	25m
Elliptical Fire Area	0ha	21.4ha	4.9ha	0.1ha
Elliptical Perimeter	77.5m	1,658m	796.3m	125.1m

The actual, observed fire behaviour is most consistent with the CFFDRS C5 fuel type.

5. SUPPRESSION

Twelve CRD and five Coastal Fire Centre staff worked on the fire the first day. The incident was under Unified Command with Pader Brach (WMB) and Ryan Biggs (CRD) as Unified Incident Commanders. The Watershed Emergency Duty Officer was Marie Robertson (CRD) and the CRD Fire Warden was Rick Royer (CRD).

Water tenders were used to supply water to a reservoir. A Mk3 pump at the reservoir supplied a hose-lay to the fire where another Mk3 pump was in place to boost nozzle pressure but was not required. The first pump station used for water supply was Judge Creek but it was dry after one load was taken. Subsequently, the Rithet Creek pump station was successfully used. Heavy water tenders struggled to use the 6M road as a result of steep hills and generally poor road condition.

Overall, suppression operations were successful and conducted very well. Coordination between CRD Watershed Protection, CRD Infrastructure Operations, CRD Regional Parks and BC Wildfire Management Staff was excellent.

During the After Action Review held on September 30, 2014, several areas for improvement in suppression were raised:

- Insufficient amount of food available for fireline personnel.
- Could have switched personnel from fireline positions to support positions to facilitate logistics.
- Need to develop Incident Command resources such as check lists to ensure that critical considerations, such as adequate food and water, do not get missed.
- Should designate WEDO as Logistics Section Chief when appropriate.
- Need to consider when to transition into calling in more patrollers when scheduled patrollers are assigned to fireline.
- Should have changed to 4x4 Wildland Fire Engines rather than Heavy tenders as soon as road limitations were recognized.

- Late patrol should have travelled to fire in the 4x4 Wildland Fire Engine remaining at FOC rather than an IA truck.

6. COMMUNICATIONS

Communications on a multi-agency fire, on a weekend, that requires calling out CRD staff on standby, multiple reporting persons, a fire whose precise location is unknown and the potential for significant values at risk can be problematic and complex.

Overall, communications went well both on the fireline and between the fireline and off-incident personnel. Communications coordinated by WEDO to Coastal Fire Centre Dispatch, incident personnel, BC Hydro, CRD Managers, patrollers and standby staff was done professionally and efficiently.

During the After Action Review held on September 30, 2014. Several areas for improvement in communications issues were identified:

- Upon arrival of Coastal Fire Centre staff, the opportunity to immediately allocate radio channels for specific uses (i.e. fireline, road traffic, WEDO, etc.) was missed.
- Designated lookouts could have been used to record/coordinate radio communications.
- Radio call signs should have been allocated for all fireline personnel and equipment operators.
- Initial fire report from patrollers to WEDO was via cell phone rather than pager. Fire reporting procedures dictate use of pager.
- Coastal Fire Centre staff should have access to watershed road channels.
- Channel 17 could have been used to provide more flexibility in radio channel allocation.

7. SAFETY

Overall, fire operations were conducted in a safe manner. Danger tree assessments were carried out by Coastal Fire Centre staff and danger trees marked. Safety briefings were completed and the relative experience of fireline staff was assessed with regards to assigned tasks.

LACES were followed with the exception of appropriate safety zones. Lookouts were established, anchor points were established, communications were generally good and evacuation routes were established and flagged. However, immediately adjacent to the forested fire site is the Sahtlam Pike Transmission Corridor. The corridor adjacent to the fire site is largely covered in continuous, head-height Scotch broom, a highly flammable fuel (photo 3). With no openings large enough for a helicopter to land, high tension transmission lines and steep, rough roads, medevac or urgent, strategic withdrawals of fireline personnel would be difficult to impossible.

During the After Action Review held on September 30, 2014, several areas for improvement in safety were raised:

- Lack of safety zones
- Lack of medevac site
- Failure to move Watershed Protection ambulance towards fire location
- Lack of appropriate radio channel allocation
- Lack of adequate road access for heavy water tenders
- Lack of vehicle parking area(s)
- Lack of vehicle turn-around area(s)
- Lack of traffic control plan
- Some missed radio communications from WEDO to fireline
- Lack of radio call signs for CRD fireline staff and equipment operators

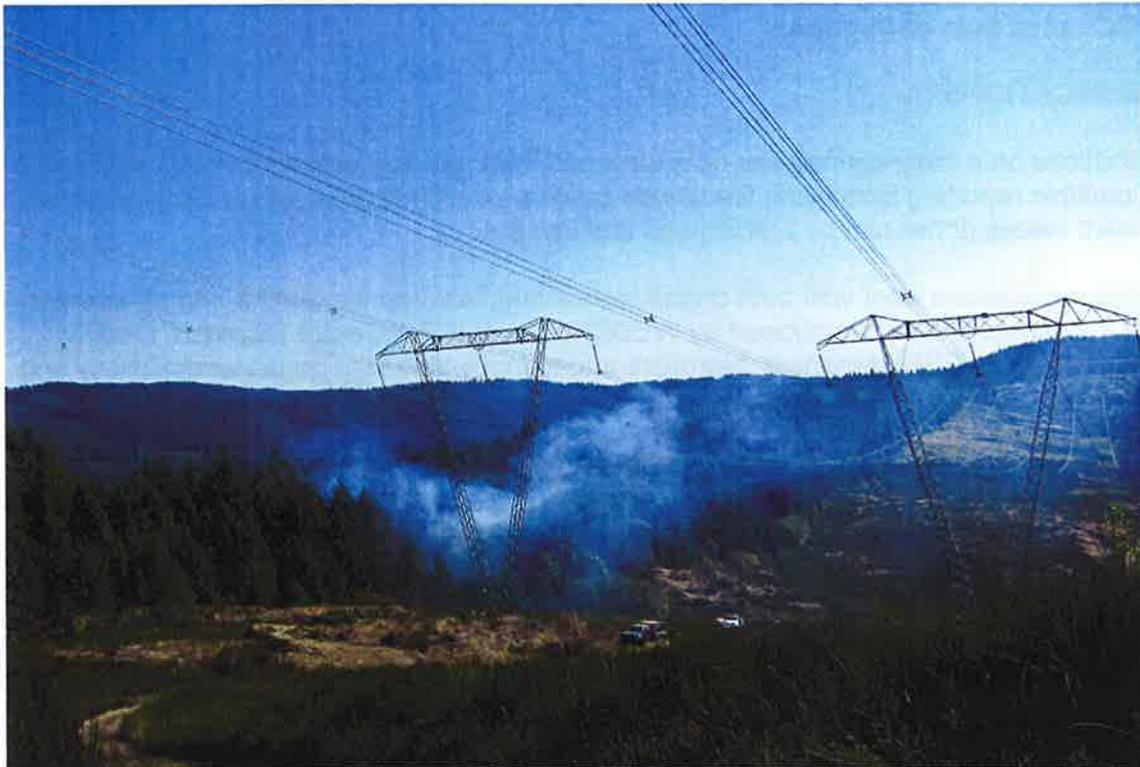


Photo 3. Scotch broom in Sahtlam Pike Transmission Corridor.

7. DISCUSSION

The fire was located on CRD owned lands adjacent to the Sahtlam Pike Transmission Corridor but originally reported as being on private forestry lands west of Shawnigan Lake. The delay in determining the precise location of the fire could have led to significant fire growth in the adjacent transmission corridor had there been sufficient wind or time to move the fire out of the forest.

The initial fire report to WEDO from the CRD ground patrol crews was communicated via cell phone rather than pager as prescribed by the Emergency Response Procedures but otherwise, the performance of the three CRD ground patrol crews met or exceeded expectations.

The fire provided an opportunity for Coastal Fire Centre staff to work with CRD staff on the fireline at a time when both agencies are working towards a closer operational relationship. The Coastal Fire Centre staff remained on the fire beyond the initial attack phase and their assistance was, and is, greatly appreciated. The opportunity to have them provide mentorship to CRD staff was of tremendous value. The professionalism and efficiency of the Coastal Fire Centre staff provides a benchmark for CRD staff and CRD operations can only benefit from future opportunities to work together.

It was particularly advantageous that all three CRD staff currently participating in the development program for Type 1 Initial Attack Crew Leaders worked on the incident. In addition, it was fortuitous the two summer fire auxiliary staff were assigned to the fire once they arrived for their scheduled late patrol shift as they have considerable fire experience to contribute to a successful incident.

The WEDO and Fire Warden provided logistical and operational support as required and contributed significantly to the success of the operation.

The call-out of the entire fire standby list, and their excellent work on the fire, demonstrated that the current system of providing standby coverage over weekends and evenings depending on fire danger levels is effective to provide required resources for fire incidents.

8. RECOMMENDATIONS

- Follow up on fire behaviour analysis this fall by collecting fuel loading data from adjacent, representative sites in order to estimate pre-fire surface fuel loading and subsequent fuel consumption.
- Include a requirement for responding CRD staff to capture photos and video of fire behaviour upon arrival at all wildfire incidents in order to support the development of a better understanding of potential fire behaviour in coastal forest fuels.
- Include a requirement for contracted aerial patrols to capture photos of any detected fire and/or smoke in order to support the development of a better understanding of potential fire behaviour in coastal forest fuels.
- Include a requirement to either lock or man all entrance gates during a wildfire incident in wildfire training. This will ensure the security of CRD equipment and water quality by managing opportunistic trespass during wildfire incidents.
- Develop radio call sign procedures for GVWSA emergency response purposes to ensure that incident communications are safe. This is critical for multi-agency or multi-divisional responses as current internal radio procedures fail to meet a minimum emergency response standard.
- Reinforce wildfire reporting procedures.
- Develop IC task lists to provide a template for required actions such as providing adequate food and water, etc.
- Further develop operational relationship between CRD and the Coastal Fire Centre with the goal of developing and integrating Type 1 Initial Attack Crews and Single Resources for deployment to WMB incidents and preparedness.
- Develop awareness of the need to consider staging WP ambulance closer to wildfire incident locations when required by Worksafe BC regulations.
- Make GVWSA road traffic channels available to responding staff from other jurisdictions through assignment of WP portable radios.
- Develop protocols for considering use of 4x4 Wildland Engines and/or skidder rather than Heavy Water Tender when roads and/or conditions warrant.
- Schedule periodic reconnaissance of the fire area to locate and remove new hunting blinds.

4. ATTACHMENTS

- 1) Wildfire Location Map
- 2) North Basin Fire Weather for September 20-22, 2014
- 3) FBP Predictions for C5, C3 and M2
- 4) CRD Logs of Action and WEDO Notes
- 5) GWWSA Wildfire Situation Report, September 18, 2014
- 6) Fireline Operations Map

Attachment 2. North Basin Fire Weather for September 20-22, 2014

Station FWx North Basin													
Table Name FWx_North_Basin		Date Range 2014-09-20 11:00 To 2014-09-22 14:00						Print Date 2014-10-15 09:15					
Date	Time	Temp	Rh	Wspd	Dir	Rn24	PPMC	DWPC	OC	BUI	IBI	PWI	DSR
2014-09-20	13:00	22.7	81.0	6.8	19.0	0.0	88.8	89.5	752.9	148.4	3.7	18.2	4.8
2014-09-21	12:00	27.9	31.0	7.1	111.0	0.0	91.4	102.1	759.6	162.6	7.5	30.5	11.5
2014-09-22	12:00	21.4	62.0	6.8	201.0	0.0	89.5	104.0	786.2	188.3	5.6	25.0	8.1

Attachment 3. FBP Predictions for C5, C3 and M2.

C5

FWI Inputs	
Projection date	Sep 21 2014
Yesterday's FFMC	85.8
Yesterday's DMC	98.5
Yesterday's DC	752.9
Noon air temperature (°C)	27.9
Noon relative humidity (%)	31
Noon 10 metre wind speed (kph)	7.1
24 hour precipitation (mm)	0
Diurnal Adjustment Inputs	
Noon standard FFMC	91.4
Time of projection	11:00
10 metre wind speed (kph)	7.4
Daylight savings time	Yes
Relative humidity (%)	34
Foliar Moisture Content Inputs	
Projection date	Sep 21 2014
Date of min FMC known	No
Date of minimum FMC	
Latitude (°N)	48
Longitude (°E)	123
Elevation above sea level (m)	320
FBP Primary Inputs	
Fuel type	C5
Grass fuel load (tonnes/ha)	4
Degree of curing (%)	80
Percent conifer (%)	50
Percent dead fir (%)	
Fine fuel moisture code	89.1
Buildup index	152.8
10 metre wind speed (kph)	7.4
Cardinal wind direction (°)	ESE
Percent ground slope (%)	0
Aspect of slope (°)	SE
Elapsed time (mins)	420
FBP Advanced Inputs	
Height to live crown base (m)	Default
Crown fuel load (kg/m ²)	Default
Foliar moisture content (%)	120
Probability of Ignition Inputs	
Fuel type	C5
Fine fuel moisture code	89.1
10 metre wind speed (kph)	7.4

FWI Output	
Noon fine fuel moisture code	91.4
Noon duff moisture code	102.1
Noon drought code	759.6
Noon initial spread index	7.4
Noon buildup index	152.8
Noon fire weather index	30.3
Diurnal Adjustment Outputs	
Adjusted FFMC	89.1
Adjusted ISI	5.5
Foliar Moisture Outputs	
Date of minimum FMC	May 07 2014
Foliar moisture content (%)	120
FBP Primary Outputs	
Final ISI - wind & slope	5.5
Spread direction azimuth (°)	292.5
Net vectored wind speed (kph)	7.4
Critical rate of spread (m/min)	14.2
Critical fire intensity (kW/m)	16,276
Probability of Ignition Output	
Probability of ignition (%)	96
Equilibrium Spread Rates	
Head fire rate of spread (m/min)	0.3
Flank fire rate of spread (m/min)	0.1
Back fire rate of spread (m/min)	0
Acceleration Outputs	
Head fire ROS at time T (m/min)	0.3
Flank fire ROS at time T (m/min)	0.1
Back fire ROS at time T (m/min)	0
Head fire time to crown fire (mins)	-----
Flank fire time to crown fire (mins)	-----
Back fire time to crown fire (mins)	-----
LB ratio at time T	1.27
Intensity Outputs	
Head fire surface intensity (kW/m)	394.8
Flank fire surface intensity (kW/m)	167.1
Back fire surface intensity (kW/m)	29.3
Head fire total intensity (kW/m)	394.8
Flank fire total intensity (kW/m)	167.1
Back fire total intensity (kW/m)	29.3
Fuel Consumption Outputs	
Surface fuel consumption (kg/m ²)	3.8
Head fire crown fuel consumed	0

Duff moisture code	102.1
Buildup index	152.8
Drought code	759.6
Acceleration Inputs	
Acceleration model	Open

(kg/m ²)	
Flank fire crown fuel consumed (kg/m ²)	0
Back fire crown fuel consumed (kg/m ²)	0
Head fire total fuel consumed (kg/m ²)	3.8
Flank fire total fuel consumed (kg/m ²)	3.8
Back fire total fuel consumed (kg/m ²)	3.8
Crown Fire Parameters	
Head fire crown fraction burned	0
Flank fire crown fract burned	0
Back fire crown fract burned	0
Distance Outputs	
Head fire spread distance (m)	141.6
Flank fire spread distance (m)	59.9
Back fire spread distance (m)	10.5
Total fire length (m)	152.1
Total fire width (m)	119.8
Elliptical Outputs	
Length-to-breadth ratio	1.27
Elliptical fire area (ha)	1.4
Elliptical fire perimeter (m)	428.7
Rate of perimeter growth (m/min)	1

FWI Inputs	
Projection date	Sep 21 2014
Yesterday's FFMC	85.8
Yesterday's DMC	98.5
Yesterday's DC	752.9
Noon air temperature (°C)	27.9
Noon relative humidity (%)	31
Noon 10 metre wind speed (kph)	7.1
24 hour precipitation (mm)	0
Diurnal Adjustment Inputs	
Noon standard FFMC	91.4
Time of projection	11:00
10 metre wind speed (kph)	7.4
Daylight savings time	Yes
Relative humidity (%)	34
Foliar Moisture Content Inputs	
Projection date	Sep 21 2014
Date of min FMC known	No
Date of minimum FMC	
Latitude (°N)	48
Longitude (°E)	123
Elevation above sea level (m)	320
FBP Primary Inputs	
Fuel type	C3
Grass fuel load (tonnes/ha)	4
Degree of curing (%)	80
Percent conifer (%)	50
Percent dead fir (%)	
Fine fuel moisture code	89.1
Buildup index	152.8
10 metre wind speed (kph)	7.4
Cardinal wind direction (°)	ESE
Percent ground slope (%)	0
Aspect of slope (°)	SE
Elapsed time (mins)	420
FBP Advanced Inputs	
Height to live crown base (m)	Default
Crown fuel load (kg/m ²)	Default
Foliar moisture content (%)	120
Probability of Ignition Inputs	
Fuel type	C3
Fine fuel moisture code	89.1
10 metre wind speed (kph)	7.4
Duff moisture code	102.1

FWI Output	
Noon fine fuel moisture code	91.4
Noon duff moisture code	102.1
Noon drought code	759.6
Noon initial spread index	7.4
Noon buildup index	152.8
Noon fire weather index	30.3
Diurnal Adjustment Outputs	
Adjusted FFMC	89.1
Adjusted ISI	5.5
Foliar Moisture Outputs	
Date of minimum FMC	May 07 2014
Foliar moisture content (%)	120
FBP Primary Outputs	
Final ISI - wind & slope	5.5
Spread direction azimuth (°)	292.5
Net vectored wind speed (kph)	7.4
Critical rate of spread (m/min)	3.9
Critical fire intensity (kW/m)	4,823
Probability of Ignition Output	
Probability of ignition (%)	80
Equilibrium Spread Rates	
Head fire rate of spread (m/min)	1.3
Flank fire rate of spread (m/min)	0.6
Back fire rate of spread (m/min)	0.2
Acceleration Outputs	
Head fire ROS at time T (m/min)	1.3
Flank fire ROS at time T (m/min)	0.6
Back fire ROS at time T (m/min)	0.2
Head fire time to crown fire (mins)	-----
Flank fire time to crown fire (mins)	-----
Back fire time to crown fire (mins)	-----
LB ratio at time T	1.27
Intensity Outputs	
Head fire surface intensity (kW/m)	1,571
Flank fire surface intensity (kW/m)	698.5
Back fire surface intensity (kW/m)	202
Head fire total intensity (kW/m)	1,571
Flank fire total intensity (kW/m)	698.5
Back fire total intensity (kW/m)	202
Fuel Consumption Outputs	
Surface fuel consumption (kg/m ²)	4.1
Head fire crown fuel consumed (kg/m ²)	0
Flank fire crown fuel consumed	0

Buildup index	152.8
Drought code	759.6
Acceleration Inputs	
Acceleration model	Open

(kg/m ²)	
Back fire crown fuel consumed (kg/m ²)	0
Head fire total fuel consumed (kg/m ²)	4.1
Flank fire total fuel consumed (kg/m ²)	4.1
Back fire total fuel consumed (kg/m ²)	4.1
Crown Fire Parameters	
Head fire crown fraction burned	0
Flank fire crown fract burned	0
Back fire crown fract burned	0
Distance Outputs	
Head fire spread distance (m)	521.4
Flank fire spread distance (m)	231.8
Back fire spread distance (m)	67
Total fire length (m)	588.4
Total fire width (m)	463.5
Elliptical Outputs	
Length-to-breadth ratio	1.27
Elliptical fire area (ha)	21.4
Elliptical fire perimeter (m)	1,658
Rate of perimeter growth (m/min)	4

FWI Inputs	
Projection date	Sep 21 2014
Yesterday's FFMC	85.8
Yesterday's DMC	98.5
Yesterday's DC	752.9
Noon air temperature (°C)	27.9
Noon relative humidity (%)	31
Noon 10 metre wind speed (kph)	7.1
24 hour precipitation (mm)	0
Diurnal Adjustment Inputs	
Noon standard FFMC	91.4
Time of projection	14:00
10 metre wind speed (kph)	8
Daylight savings time	Yes
Relative humidity (%)	
Foliar Moisture Content Inputs	
Projection date	Sep 21 2014
Date of min FMC known	No
Date of minimum FMC	
Latitude (°N)	48
Longitude (°E)	123
Elevation above sea level (m)	320
FBP Primary Inputs	
Fuel type	M2
Grass fuel load (tonnes/ha)	4
Degree of curing (%)	80
Percent conifer (%)	50
Percent dead fir (%)	
Fine fuel moisture code	89.7
Buildup index	152.8
10 metre wind speed (kph)	8
Cardinal wind direction (°)	ESE
Percent ground slope (%)	0
Aspect of slope (°)	SE
Elapsed time (mins)	60
FBP Advanced Inputs	
Height to live crown base (m)	25
Crown fuel load (kg/m ²)	Default
Foliar moisture content (%)	120
Probability of Ignition Inputs	
Fuel type	M2
Fine fuel moisture code	89.7
10 metre wind speed (kph)	8
Duff moisture code	102.1

FWI Output	
Noon fine fuel moisture code	91.4
Noon duff moisture code	102.1
Noon drought code	759.6
Noon initial spread index	7.4
Noon buildup index	152.8
Noon fire weather index	30.3
Diurnal Adjustment Outputs	
Adjusted FFMC	89.7
Adjusted ISI	6.2
Foliar Moisture Outputs	
Date of minimum FMC	May 07 2014
Foliar moisture content (%)	120
FBP Primary Outputs	
Final ISI - wind & slope	6.2
Spread direction azimuth (°)	292.5
Net vectored wind speed (kph)	8
Critical rate of spread (m/min)	32
Critical fire intensity (kW/m)	26,641
Probability of Ignition Output	
Probability of ignition (%)	97
Equilibrium Spread Rates	
Head fire rate of spread (m/min)	4.2
Flank fire rate of spread (m/min)	2.1
Back fire rate of spread (m/min)	1.4
Acceleration Outputs	
Head fire ROS at time T (m/min)	4.2
Flank fire ROS at time T (m/min)	2.1
Back fire ROS at time T (m/min)	1.3
Head fire time to crown fire (mins)	-----
Flank fire time to crown fire (mins)	-----
Back fire time to crown fire (mins)	-----
LB ratio at time T	1.31
Intensity Outputs	
Head fire surface intensity (kW/m)	3,516
Flank fire surface intensity (kW/m)	1,767
Back fire surface intensity (kW/m)	1,123
Head fire total intensity (kW/m)	3,516
Flank fire total intensity (kW/m)	1,767
Back fire total intensity (kW/m)	1,123
Fuel Consumption Outputs	
Surface fuel consumption (kg/m ²)	2.8
Head fire crown fuel consumed (kg/m ²)	0
Flank fire crown fuel consumed	0

Buildup index	152.8
Drought code	759.6
Acceleration Inputs	
Acceleration model	Open

(kg/m ²)	
Back fire crown fuel consumed (kg/m ²)	0
Head fire total fuel consumed (kg/m ²)	2.8
Flank fire total fuel consumed (kg/m ²)	2.8
Back fire total fuel consumed (kg/m ²)	2.8
Crown Fire Parameters	
Head fire crown fraction burned	0
Flank fire crown fract burned	0
Back fire crown fract burned	0
Distance Outputs	
Head fire spread distance (m)	217.1
Flank fire spread distance (m)	109.1
Back fire spread distance (m)	69.3
Total fire length (m)	286.4
Total fire width (m)	218.2
Elliptical Outputs	
Length-to-breadth ratio	1.31
Elliptical fire area (ha)	4.9
Elliptical fire perimeter (m)	796.3
Rate of perimeter growth (m/min)	15.5

Attachment 5. CRD Logs of Action and WEDO Notes

R. Biggs
Sept. 24/'14

2S Fire – September 21, 2014

Notes from Kelly Maher (Patrol Crew 1):

10:20- Air Patrol notifies patrol crews of a plume of fire west of Shawnigan Lake under the power lines near 6M.
10:21- Crew 1 contacted Crew 2 to confirm transmission from Air Patrol.
10:22- Crew 1 informs Crew 2 that they'll head to 5M gate for a visual. While Crew 2 will travel to 2S vantage point.
10:23- Crew 1 requests coordinates of smoke from Air Patrol.
10:35- Air Patrol confirms the coordinates as 48 40N 123 40W
10:39- Crew's 1 and 2 confirm transmission
10:42- Crew 2 contacts WEDO
10:48- Crew 1 arrives at 5M gates and a visual of the fire can be seen. Informs Crew 2 that they'll meet at 2S vantage point.
10:49- Air Patrol relays an updated location of 5 meters inside tree line near 2S
10:51- Crew 2 achieves visual while on 2S and believes fire is within CRD property line.
11:01- Crew 2 confirm smoke location from 2S vantage point requests Crew 1 location. Crew 1 ETA 15 mins.
11:20- Patrol crews meet at 2S at the site of the fire.
11:26- Coordinates confirmed as 48 36' 26" 123 39' 46"
11:30- Crew 1 obtains a visual from within the forest boundary.
11:45- Crews 1 and 2 move vehicles to a turnaround past 6M gate.
11:55- MOF arrive on site.

Notes from Ryan:

11:15 – Fire callout
11:30 – Arrive FOC – Burn and Ryan mobilize IA truck and gear, head to 2S
12:10 – Arrive at fire – Command established
Pader (WMB) – IC
Rick R. (CRD) – Fire Warden
Marie R. (CRD) - WEDO
Ryan (CRD) – CRD Crew Leader
Josh (WMB) – Crew leader for fire site and suppression activities

People on site and assigned duties during fire:

Burn H. – pump operator
Nigel B. – swamping for saw work (WMB crew member cutting safety trail into the fire site)
- Fire fighter
Kelly M. – swamping for saw work (WMB crew member cutting safety trail into the fire site)
- Fire fighter
Warren C. – truck driver for water tender
Nathan B. – truck driver for water tender
- Pump operator for first load of water off of his tender
Lyndsey H. – assigned lookout (patrol 2S road/Sooke Main/surrounding area)
- Fire fighter
Matt W. – assigned lookout (patrol 2S road/Sooke Main/surrounding area)

R. Biggs
Sept. 24/'14

- Fire fighter
- Colby W. – stationed at Sooke gate for Hydro escort/security
 - Pumping site setup at Judge Ck. and Rithet Ck.
 - Fire fighter
- Patrick M – stationed at Sooke gate for Hydro escort/security
 - Pumping site setup at Judge Ck. and Rithet Ck.
 - Fire fighter

Key points and times:

- 1) WMB had 4 fire fighters + Pader on site.
- 2) WMB completed DT Assessment and removal. Any suspect trees flagged in blue.
- 3) Josh (WMB) provided crew safety briefing when people arrived to the fire site
- 4) BC Hydro arrived on site (1:30ish??), spoke with Pader and Ryan – had no concerns regarding safety on this fire due to the location outside of the RoW.

12:50 – water on fire
14:30 – 100% containment
14:30 – mop up begins
17:27 – fire considered in 'patrol' phase
17:30 – demobilization of all WMB gear
18:15 – all personnel leave fire site

September 22
10:30 – last smoke extinguished



Making a difference...together

Integrated Water Services - Watershed Protection Division

**WILDFIRE SITUATION REPORT
GREATER VICTORIA WATER SUPPLY AREA**

Date: September 18, 2014

WILDFIRE DANGER (Based on Benchmark* Stations)		
LEECH WSA*	SOOKE WSA**	GOLDSTREAM WSA***
High	Extreme	Moderate

Canadian Forest Fire Danger Rating System - Codes and Indices (September 18 Data)							
Station	FFMC	DMC	DC	ISI	BUI	FWI	DGR
Martin's Gulch*	83.2	69	671	3.2	110	14.6	HIGH
North Basin**	85.9	95	742	4.4	144	20.8	EXT
14G***	67.1	70	684	0.9	111	4.8	MOD
31N	68.9	64	675	1.4	104	7.0	MOD
Sooke Dam	82.8	89	781	2.7	139	14.0	HIGH
4RW6	83.3	66	624	3.3	105	14.5	HIGH

*Benchmark Stations

Weather Forecast: Warming and clearing somewhat again by Friday with sunny and warm weather over the weekend. Still a chance of fire season-ending precipitation some time next week.

Operational Restrictions:
 Leech WSA – High – Fire watcher required for two hours following cessation of operations.
 Sooke WSA – Extreme – No high risk activities permitted.
 Goldstream WSA - Moderate – No restrictions.

Resources:
 Watershed Emergency Duty Officer (WEDO): (pager 1-866-301-4075)
 Patrols: Ground - Coverage from 0600-2000. Air – 2 patrols daily.

Contact Information:
 For all emergencies contact **WEDO** (Pager 1-866-301-4075, ask for WEDO).
 For Operational Restriction and/or Wildfire/Fire Weather questions/concerns, contact Fire Warden - (Pager 1-866-301-4075, ask for Don Herriott)



Distribution: Wildfire Preparedness Notice Boards; Email: "Wildfire Danger" group



Intramap 2.0
 Capital Regional District
 ops@crd.bc.ca
 http://www.crd.bc.ca



WS201402

Ops Layout

Important
 This map is for general information purposes only. The Capital Regional District (CRD) makes no representation or warranty regarding the accuracy or completeness of this map or the suitability of the map for any purpose. Users are advised to consult with the CRD or other appropriate authorities for more detailed information. The CRD is not responsible for any damage or loss resulting from the use of this map or any other information provided by the CRD.
 Printed 11/14, Oct 14, 2014

WILDFIRE PREPAREDNESS DAILY STATUS

DATE: SUNDAY, SEPTEMBER 21, 2014

FIRE BEHAVIOUR

Area	Fire Danger	Ease Of Ignition	Rate Of Spread	Difficulty Of Control
Goldstream:	MODERATE	MODERATELY DIFF	SLOW	HIGH
Sooke:	HIGH	MODERATELY DIFF	SLOW	HIGH
Leech:	MODERATE	DIFFICULT	SLOW	MODERATE

DUTY OFFICERS

WEDO - Pager [REDACTED]					
Name:	Marie Robertson	Cellular:	[REDACTED]	Home:	[REDACTED]
Fire Warden - Pager [REDACTED]					
Name:	Rick Royer	Cellular:	n/a	Home:	[REDACTED]
Assistant Fire Warden - Pager [REDACTED]					
Name:		Cellular:	n/a	Home:	

PATROLS

Patrol Unit	Vehicle	Name(s)	Time	Phone	Total On Patrol – 6
Crew 1	FWP078	Nigel Buckland, Kelly Maher	6:00am – 2:00pm	[REDACTED]	
Crew 2	F01119	Lindsey Haist, Matt Wilkie	9:00am – 5:00pm	[REDACTED]	
Crew 3	F01118	Colby Whelan, Patrick Moreau	12:00pm – 8:00pm	[REDACTED]	

AIR PATROL

Start: 10:00am	End: 10:30am	Start: 3:30pm	End: 4:00pm
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FIRE WATCHERS

Name(s)	Vehicle	Location	Time	Phone
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EQUIPMENT LOCATIONS

Unit (License if Required)	Location	Comments
FWFT01 Water Tender - 2700 L (4x4, Class 5)	30L Boathouse	Full Complement
F01110 Water Tender - 5200 L (Class 3 w/ air)	Sooke Main Gate	Full Complement
FWDT01 Water Tender - 9000 L (Class 3 w/ air)	FOC	Full Complement
F14008 Water Tender - 2700 L (4x4, Class 5)	FOC	Full Complement
Skidder – 1600L (Qualified Operator)	Pipeyard	Full Complement

CRD WATER WILDFIRE STANDBY CREW: Pager 1-866-301-4075

Total On Call – 4

Standby Times: Midnight Saturday – 8:00am Monday

Name (Role*)	Phone	Name (Role*)	Phone
Burn Hemus (FF)	[REDACTED]	Nathan Boyne (TD)	[REDACTED]
Ryan Biggs (FF)	[REDACTED]	Warren Creamer (MO)	[REDACTED]

Standby Times:

Name (Role*)	Phone	Name (Role*)	Phone

***Role Codes:**

- | | | |
|--------------------|-------------------------|----------------------|
| (CL) – Crew Leader | (CB) – Crew Boss | (FF) – Fire Fighter |
| (LG) – Logistics | (MO) – Machine Operator | (TD) – Truck Driver |
| (FL) – Faller | (DP) – Dispatcher | (PO) – Pump Operator |

SPARES

Total Spares – 11

Name	Phone	Name	Phone
Tom Tamboline	[REDACTED]	Doreen Wrede	[REDACTED]
Mike Burrell	[REDACTED]	Steve Ford	[REDACTED]
Nathan Prenger	[REDACTED]	Sharon Scott	[REDACTED]
Kelly Edwards	[REDACTED]	Ron Van de Water	[REDACTED]
Randy Browning	[REDACTED]	Hew Padmore	[REDACTED]
Mark Gann	[REDACTED]		

OFF-DUTY PATROLLERS (May be available outside of shift times listed above)

Name	Phone	Name	Phone
Patrick Moreau	[REDACTED]	Colby Whelan	[REDACTED]
Nigel Buckland	[REDACTED]	Lindsey Haist	[REDACTED]

VACATION / LEAVE / NOT AVAILABLE

Total Not Available – 5

Doug Nelson	[REDACTED]	Don Herriott	[REDACTED]
Tom Davies	[REDACTED]	Dan Wiren	[REDACTED]
Ron Roemmele	[REDACTED]		

COMMENTS: _____

Distribution:

- Wildfire Preparedness Notice Boards; **E-mail:** General Manager / Senior Managers / Japan Gulch Disinfection Facility / Water Samplers Office / IWS Reception / Water Ops. Clerk / Watershed Protection personnel